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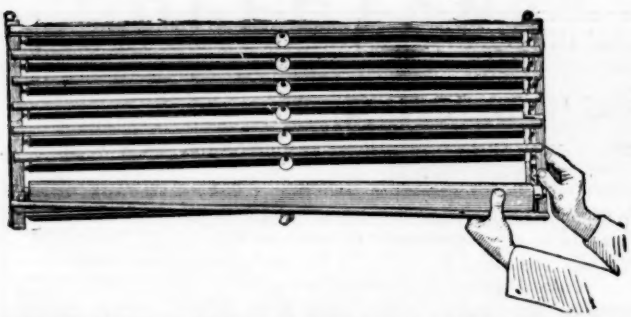

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GENTLEMEN,—He who is commemorated in a memorial lecture is often but a dim figure of the past, for whom and for whose work the lecturer can feel only a platonic admiration; but it is a very different matter when one does homage to a man whom he has known and liked, a member of his own university, and a dweller in the next street. Such was Gustave Schorstein, whose too early death left, for all who knew and valued him, a gap not easily filled, a sense of loss of a talented and attractive personality. I esteem it a great privilege to be permitted to pay this tribute to his memory.

This lecture should have been delivered five years ago, but the war and its duties intervened. Now that we are at peace once more, and are trying to make up the time lost during "the years that the locust hath eaten," the invitation has been renewed, and for that honour it is my pleasant duty to return my thanks.

In point of diagnostic display the liver and the pancreas, both glands of many vital functions, may be compared to a shop window and an office door. Derangement of the work of the shop may be obvious to the passer-by in the street, whereas what goes on behind the ground glass of the office door is hidden from public view, and is only manifested in the indirect effects of disorder of the activities within. If only the pancreas produced such a coloured secretion as the bile how much easier would be the diagnosis of many of its lesions. As it is, the position of the pancreas, sufficiently remote to shield it from examination, but not from injury, and the fact that its secretion is poured into so inaccessible a region of the alimentary canal, enabled it for a long time to puzzle the physiologist and to baffle the physician.

In the middle of the last century Sir Thomas Watson,[1] in one of those delightful lectures of his which, in lucidity and literary style, rank with those of Trousseau, spoke as follows: "It may seem a slight to the pancreas to pass it over without noticing the diseases to which it is subject. But really these diseases appear to be but few; and they do not signify their existence by any plain or intelligible signs." Somewhat later Bristowe,[2] in his well-known text-book of medicine, expressed his belief that in the great majority of cases pancreatic disease will doubtless remain undetected during life. But some other writers of that period struck a more hopeful note, and among them Wardell,[3] who, in 1871, wrote: "No symptoms are pathognomonic of pancreatic disease; an assemblage of symptoms indicates the probability of its lesion." These words still hold true to-day, and they embody the thesis of this lecture.

It is true that we have learnt to recognise, in fat-necrosis, a sign pathognomonic of certain lesions of the gland; but since this is only made manifest by opening the abdomen it lends us no help at the bedside. One other sign has been claimed as distinctive—namely, true steatorrhœa, which was recognised by Kunzmann[4] as early as 1824, and independently by Richard Bright[5] in 1832, as indicative of pancreatic disease. Even nowadays pancreatic lesions often escape diagnosis, and Paul Carnot[6] puts his finger upon the cause of many such failures in the following passage: "Le plus difficile est, souvent alors, de songer au pancréas, etant donné la rareté apparente des affections de cette glande." The more constantly we bear the pancreas in mind as a possible seat of origin of obscure abdominal troubles the less likely shall we be to overlook its lesions.

Diagnostic Indications.

The diagnostic indications at our disposal fall into three main groups. In the first are the clinical signs and symptoms, such as tumour, pain, tenderness, vomiting, cyanosis, and the like, and the signs of pressure upon neighbouring structures. Secondly, we may detect signs of failure of external secretion, defective digestion of proteins, fats, and carbohydrates. Thirdly, indications of failure of internal secretion, of which glycosuria is at the same time the most important and the best known.

TABLE I.—*Pancreatic Signs and Tests.*

Physical signs and symptoms.	Defects of external secretion.	Defects of internal secretion.
Aspect.	Steatorrhœa.	Glycosuria.
Tumour.	Fatty stools.	Lowered sugar tolerance.
Pain.	Creatorrhœa.	Cammidge's tests.
Tenderness.	Impaired casein digestion.	
Cyanosis.		
Vomiting.	Duodenal sound.	
Constipation.	Einhorn's method.	
Diarrhœa.	Oil breakfast.	
Jaundice.		
Sympathetic signs.	Sahli's capsules.	
Ocular.	Schmidt's test.	
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	Diastase test in urine and fæces.	

Lastly, there are certain syndromes which clinical and pathological experience has taught us to associate with lesions of the pancreas. Thus the diagnosis of carcinoma of the head of the gland is often correctly made upon purely clinical evidence, and in cases of bronzed diabetes, with the enlarged cirrhotic liver and peculiar pigmentation of the skin, the pancreas is always implicated.

Many ingenious tests of pancreatic efficiency have been devised, and each test has its adherents and each its critics who question its utility. But surely we are wont to ask too much from such tests. We cannot look to any test for a penny-in-the-slot diagnosis, especially of such widely diverse lesions as those to which the pancreas is liable. At best we cannot hope to gain more than an item of circumstantial evidence, which, taken in conjunction with other items, may contribute to a diagnosis of probability or even of certainty. Taken alone each test may fail or may actually mislead. In some instances a negative and in others a positive response carries little weight, and one needs to get to know a test well before he can estimate the significance of its answers.

It is not my intention, nor would it be possible in a single lecture, to describe the many pancreatic tests. In my wards we have employed most of them in turn, and in cases of special difficulty have resorted to many. For some years before the war we were interested in this subject, and it is to the help of a group of active fellow workers that I owe most of such knowledge of it as I possess. I would specially mention my indebtedness to Dr. Arthur Sladden, my former house physician, who has embodied his conclusions in two valuable papers,[37] and to Dr. Mackenzie Wallis, whose M.D. thesis on this subject I have been permitted to read, and who has forgiven me beforehand if I should encroach upon his ground in advance. To Dr. W. H. Hurtley, to Dr. G. Graham, my assistant, and to Dr. Geoffrey Evans, also, I am grateful for much valuable help.

Where there is so great a choice of tests workers tend naturally to concentrate upon some few which have seemed to them especially useful and easy of application. Each one develops his own routine, and different workers make different choices. The tests upon which one man relies do not necessarily serve another best.

The Physical Signs and Symptoms of Disease of the Pancreas.

The physical signs and symptoms of disease of the pancreas are best seen in cases of acute pancreatitis, although the large cysts which sometimes spring from the gland produce far more conspicuous swellings, and it is with carcinomata that the pressure signs are most clearly manifested. Nevertheless, the diagnosis of acute pancreatitis is by no means easy in many cases, and the most common false diagnosis is one of acute intestinal obstruction.

A grossly enlarged pancreas forms a tumour in the upper part of the abdomen, lying between the xiphoid cartilage and the umbilicus. It does not move with respiration, and has often but an ill-defined outline. The natural dullness on percussion is obscured by the overlapping of the stomach and intestine. In favourable cases, in thin subjects, and especially under an anæsthetic, it is even possible to feel a pancreas which is only slightly enlarged, and some have claimed to have felt the normal pancreas. By percussion over the back Dr. W. Ewart maintains that the size of the gland may be mapped out with considerable accuracy.

The pain of pancreatic disease may be continuous or paroxysmal, it is felt in the abdomen, and is liable to be confused with other acute abdominal pains. My own experience and that of my colleague, Mr. H. J. Waring, which is considerably greater, leads us to attach much more importance to pain across the back than do most of those who have written upon the subject, and in cases of carcinoma of the pancreas also such pain is often a prominent symptom. In acute pancreatitis vomiting is usually severe, obstinate constipation tends to strengthen the suspicion of intestinal obstruction, and a feature which has some diagnostic value is a slight degree of cyanosis. The abdomen is usually distended, but as a rule there is less rigidity of the muscles than in other acute inflammatory lesions within the abdomen.

Of pressure symptoms referable to the diseased pancreas jaundice is by far the most conspicuous, and, in view of the anatomical relations of the gland to the common bile-duct, this is in no way surprising. In cases of carcinoma of the head of the gland the jaundice is of extreme degree, and complete absence of urobilin from the stools shows that the bile-duct is completely occluded. Oser[7] suggests, and Sir Mayo Robson[8] also holds, that the so-called catarrhal jaundice may have its origin in a swelling of the pancreas. We have as yet little knowledge of the slighter inflammatory affections of the gland, but there is one variety, the clinical features of which are fairly well known—namely, that which occurs as a metastasis of mumps. Some years ago Dr. Cammidge told me that of 8 cases of mumps with abdominal symptoms he had found his test positive in 4, and in one of these it was no longer obtained after an interval of a month. Glycosuria was present in one case. Barbieri[9] has recorded a case of temporary glycosuria with this affection, and Finizio[10] one with transitory steatorrhœa, with as much as 60 per cent. of neutral fat in the stools. I have been able to find only a single record of an autopsy in such a case, and in that case alone was jaundice one of the symptoms. Lemoine and Lapasset,[11] who described it, found the pancreas swollen, œdematous, congested, and of a reddish-grey tint.

The absence of jaundice in almost all cases of the pancreatitis of mumps seems to me to afford a strong argument against the connexion of catarrhal jaundice with a catarrhal pancreatitis, and it is certainly no common feature of cases of grave pancreatitis, hæmorrhagic or other.

On the other hand, there is, as Mayo Robson has shown, a close connexion between gall-stone troubles and interstitial pancreatitis, and from the anatomical relations of the biliary and pancreatic ducts an infection of the one is likely to spread to the other. So jaundice with pancreas lesions may have other origin than in compression of the bile-duct. A tumour of the pancreas may cause considerable obstruction of the duodenum also. Watson mentions this in his lecture already referred to, and actual obstruction may occur in those rare instances in which the head of the gland encircles the duodenum completely. Again, there may be signs of pressure upon the portal vein and vena cava.

In a short paper, published in 1912, Cohn and Peiser[12] called attention to the presence in some cases of pancreatitis, of the ocular symptoms which we associate with undue activity of the thyroid gland. Of a series of 5 cases, 3 of hæmorrhagic, 1 of suppurative, and 1 of chronic interstitial pancreatitis, they found some exophthalmos in 4, von Graefe's sign in 4, Mœbius and Stellwag's signs in all 5, and also tremor and dermatography in all. However, they wisely decline to draw any sweeping conclusions from so small a number of cases.

Shortly after reading their paper I was able to confirm their observations in a case of which I shall speak later. The association clearly calls for further study, and has very interesting bearings upon the wider subject of the interaction of the thyroid gland and pancreas, of which I hope to treat at greater length on some future occasion.

The experience of many of us, who have been engaged on military duties in recent years, has taught us to look for signs of hyperthyroidism in conditions which we did not formerly connect with the thyroid gland, and to recognise that the characteristic case of Graves's disease is merely the culminating point of a series of intermediate grades which bridge the gap between it and normality. Moreover, we have witnessed a dissociation of the thyroid symptoms, one patient

showing the ocular signs alone and another tachycardia with tremor. Indeed, it would seem that there are several thyroidal hormones, and that excess of one does not necessarily carry with it excess of another. Of such conceptions we have long had glimmerings, as witness the use of the term "larval Graves's disease."

As a rule, when thyroidal and pancreatic symptoms are seen in association, the thyroid appears to be the organ primarily at fault, and the observations of Cohn and Peiser, for which the converse holds good, are of all the greater interest on that account.

But if in pancreatitis the eye symptoms referred to are due to excessive thyroid secretion it is really the sympathetic nervous system which is stimulating the gland to over-activity, and it is not wonderful that the sympathetic should be disturbed when the pancreas is the seat of disease, seeing how near a neighbour it is of the great abdominal ganglia and plexuses. Indeed, many of the symptoms of acute pancreatitis, the severe and often paroxysmal pains, the vomiting and collapse, are, by many, attributed to this proximity. There is evidence, too, of a restraining effect of the pancreas upon the excitability of the sympathetic, an influence which is withdrawn when the pancreas becomes the seat of disease.

It was to test the existence of such a soft-pedal influence that O. Loewi[13] applied his adrenalin mydriasis test to depancreatised cats and dogs. The extension of his observations to human subjects led to the introduction of one of the most interesting, although not one of the most conclusive, of the tests of pancreatic efficiency. Two or three drops of a 1 in 1000 solution of adrenalin, freshly prepared, are dropped into the conjunctival sac, and the process is repeated after an interval of five minutes. In the great majority of instances no dilatation of the pupil occurs, but in a few cases there is conspicuous dilatation in the course of half an hour or an hour. The dilated pupil is usually eccentric in position, and often conspicuously oval in form. When Loewi first tried the test upon normal people, and upon a series of patients in the Vienna clinics, mydriasis was seen only in 1 out of 3 cases of exophthalmic goitre, and in 10 out of 18 diabetics. Apparently there were no cases of gross pancreatic disease in the series. Loewi regarded the positive results in some cases of diabetes as indicative of a pancreatic origin, but attributed the mydriasis in the case of exophthalmic goitre to the irritability of the sympathetic in that disease. Of recent years we have employed Loewi's test widely in my wards, and in my opinion it is of undoubted value in the diagnosis of pancreatic lesions, provided always that its ways have been studied, and that its limitations are fully recognised.

The dilatation of the pupil is a decidedly uncommon phenomenon. Unlike Loewi, I have seen it in very few cases of diabetes in which there was no other evidence of lesions of the pancreas, and I have obtained it only once in exophthalmic goitre. We have failed repeatedly to obtain dilatation when the test was repeated, within a day or two, upon an eye which had previously dilated, whereas the mydriasis was again brought about after a longer interval. The pupils need to be carefully examined before the adrenalin is applied, not only as to their equality, but also to make sure that the iris of the eye tested is mobile. We have been deceived in one case by trying to dilate a pupil fixed by synechiæ, and dilatation is inhibited, for a time, by the administration of morphine.

The test may fail, at a later stage, in a case in which dilatation had occurred at an earlier period. It may fail in a case in which there is definite disease of the pancreas, and may succeed in another in which there is no gross lesion of the gland. All this sounds very discouraging, but the experience gained in a large number of cases has taught me to regard adrenal mydriasis as strongly suggestive of a pancreatic lesion, and to look upon it as a valuable link in a chain of evidence pointing to such a lesion. On the other hand, I would *never* venture such a diagnosis upon this reaction alone, nor should I conclude from the absence of any dilatation that the pancreas was intact. Of few of the tests of pancreatic efficiency can more be said.

One of the drawbacks of Loewi's test is that it is, if anything, too delicate, and is wont to give a positive response to a lesion which merely worries the pancreas, without involving it to any noteworthy extent. Against this may be set the advantage that the dilatation of the pupil is apt to be most marked at a stage when the excretory functions of the gland are not, as yet, seriously impaired.

The Indications of Abeyance of the External Secretion of the Pancreas.

The indications of abeyance of the external secretion of the pancreas, which now claim our attention, are the most valuable aids to diagnosis that we possess, and upon such evidence alone a secure diagnosis may in some cases be based. We may look for failure of the digestion of proteins, fats, and carbohydrates alike, for, unlike any other digestive gland, the pancreas takes an important part in dealing with all three classes of foodstuffs. But, in my opinion, the signs of failure of digestion of fats are the most significant of all.

If there be any single sign which, standing alone, may be regarded as pathognomonic of disease of the pancreas it is true steatorrhœa. By this is meant the passage with the fæces of liquid fat which solidifies on cooling. Salomon[14] speaks of it as a sign observed only with pancreatic disease, and for my own part I should not hesitate to share his view, but for a case which Dr. Hurtley and I investigated some years ago.[15]

The patient, a boy then 7 years old, had passed oil with his motions from birth. A younger brother, who died of measles at 11 months, had exhibited the same anomaly, whereas the three other children had not. The parents are first-cousins. The boy was otherwise in good health, well grown, and with no trace of infantilism. Last month I saw him again after an interval of six years, and found that the same still holds good. Although many tests were applied, no other sign of lesion of the pancreas could be found, and, in spite of the defect of fat utilisation, the digestion of proteins was not impaired; and the stools contained no undigested meat fibres. Apparently this boy is the subject of an inborn error of metabolism, probably due to the absence of a normal enzyme, presumably a pancreatic enzyme. It is difficult to believe that there is any real disease of his pancreas.

There are grounds for the belief that both the external and internal secretions of the pancreas take part in the utilisation of fats, the lipase being concerned with the splitting of fats, the internal secretion with their absorption.

The gross failure of fat-splitting, which Friedrich Müller[16] described as so characteristic of lesions of the pancreas, may be lacking in cases in which there is conspicuous excess of fæcal fat in association

with such lesions, and experience teaches us that the total fat-content of the stools, made up of fats, fatty acids, and soaps, affords a safer guide. Better still is the information supplied by the far more laborious estimation of the proportion of the fat taken in the food which is lost in the fæces. When, in addition, there is a conspicuous failure to split fats the evidence of a lesion of the pancreas is so much the more cogent. In the stools of a healthy man some 75 per cent. of the fat is in the split form, whereas some patients with pancreatic disease pass as little as 20 per cent. in the forms of fatty acids and soaps. The great diagnostic significance of true steatorrhœa arise from the fact that it indicates not only an excess of fats in the stools but also an undue proportion of neutral fat.

In cases with no gross steatorrhœa the microscope may show abundant fat globules and many acicular crystals of fatty acids. Moreover, the large bulk of the fatty stools may arrest attention, and in some cases they are justly described as elephantine.

The jaundice, which is so often associated with obstruction of the pancreatic duct, obscures, to some extent, the indications afforded by the estimation of the fæcal fats, for the mere absence of bile from the intestine causes a great impairment of fat absorption; but even when the pancreatic duct alone is blocked widely divergent results are obtained in different cases. Moreover, in the majority of cases of disease of the pancreas there is no blockage of the duct, and the impairment of secretion results from damage to the glandular tissue, and is less in degree. A patient with grave disease of the pancreas may pass stools with normal fat-content, and this is true even of some cases in which the duct is obstructed, probably because the duct of Santorini remains patent and provides an emergency outlet.

Even when jaundice is present a proportion of fats in the dried fæces exceeding 40 or 50 per cent. is strongly suggestive of a pancreas lesion, and in some cases there is a percentage of 80 or more.

L. Zoja[17] lays stress upon an unduly low proportion of soaps as indicative of pancreatic disease, presumably from a deficient supply of alkali in the intestine, but our own experience and that of others leads us to attach little importance to this sign.

Fat Excretion.

Oskar Gross,[18] who made a very complete study of the fat excretion of two patients with indubitable disease of the pancreas, found that in one case the percentage of the food-fat lost in the fæces remained constant, in spite of wide variations in the amounts in the diet, and Hurtley and I found the same to be true for our case of congenital steatorrhœa; but in Gross's second case, and in that investigated by Spriggs and Leigh,[19] the loss of fat became much greater when the fat in the diet was increased. The last-named observers suggest that the constant percentage loss may only hold good for cases in which the patient's nutrition remains good. It is a remarkable phenomenon and one not easily explained, but upon which future work may throw light.

It will be seen from what has gone before that a patient whose pancreas is diseased may pass excess of neutral fats in his motions, or a great excess of fats, fatty acids and soaps, without any undue proportion of neutral fat. Lastly, a lesion of the pancreas can by no means be excluded on the ground that the stools contain no excess of fatty substances.

Winternitz has introduced a test of the efficiency of the pancreas in dealing with fats. Half a gramme of iodo-behenic acid, or the drug sajodin which is its calcium salt, is given by the mouth, and iodide is looked for in the urine. The sajodin is only broken up when it comes under the influence of the pancreatic juice, and by it only in presence of bile. On this account the test is not applicable when the bile-duct is completely obstructed. When there is no jaundice failure to find iodide in the urine suggests that the lipolytic action of the pancreas is in abeyance.

When, in addition to impaired splitting or utilisation of fats, there is obvious failure of protein digestion the evidence of a pancreatic lesion is well-nigh conclusive. There are many ways in which such failure may be detected, but the simplest of all is at the same time the most convincing. A patient with severe pancreatic disease will, as a rule, pass in his fæces large numbers of muscle fibres, derived from the meat which he eats, undigested and with their striæ clearly visible under the microscope. He may also pass particles of undigested tissue, and Albu[20] recommends calf's thymus as an article of diet the structure of which is easily recognised in the stools. For this phenomenon Ehrmann suggested the name creatorrhœa, by which it is generally called; and, although the term invites criticism, it is not easy to invent a better.

Creatorrhœa.

Creatorrhœa, although it may accompany profuse diarrhœa from any cause, is hardly inferior to fatty stools in diagnostic value, and it has the advantage that it is not affected by blocking of the bile-duct. In a case with jaundice, in which the indications afforded by the fæcal fat are not unequivocal, the discovery of undigested striped muscle fibres in the stools may help materially to clench an otherwise doubtful diagnosis.

Cases are met with in which the syndrome steatorrhœa-creatorrhœa persists for years, in a patient who otherwise enjoys moderately good health, who leads an active life and exhibits no other gross sign of disease. Some such patients have been found to have the duct blocked with calculi and the structure of the gland destroyed, and yet may never have exhibited glycosuria. In these cases the more elaborate tests will, as a rule, afford additional evidence of disease of the pancreas.

Excessive excretion of nitrogen in the stools, and a consequent inordinate loss of nitrogen as determined by metabolism investigations, affords additional evidence of impairment of protein utilisation, but other ferments besides trypsin take part in this work, and azotorrhœa, so-called, is far less distinctive than the escape of striped muscle fibres and nuclei. Moreover, the fatty stools of a patient with pancreatic disease offer a far from ideal material for Kjeldahl estimations.

Tests of Tryptic Digestion.

The majority of the pancreatic tests are concerned with the failure of tryptic digestion. They fall into three main groups of procedures. Some of them aim at obtaining a sample of duodenal contents for examination; others rely upon the despatch of messengers along the alimentary canal and the examination of the stools or other secreta for evidence as to what has happened to them in their transit; and yet others upon estimation of the tryptic action of the fæces.

The oil-breakfast test relies upon the fact that under its influence some of the contents of the duodenum are regurgitated into the stomach, and may be found in the test meal when it is siphoned off. The technique of the test is comparatively simple, and its results are, as a rule, instructive, but the swallowing of a large dose of olive oil (2 oz.) with a test meal upon an empty stomach, and its subsequent withdrawal, is a proceeding which has little attraction for the British patient. It has been clearly shown that it is possible to obtain a sample of the secretion in the duodenum, either by means of a suitably constructed duodenal sound or, better still, by Einhorn's ingenious device of a small metal capsule cased in gelatin and attached to a string or to an indiarubber tube. The capsule is swallowed and is passed on into the duodenum by gastric peristalsis. It is well to check its progress by X ray examination. By this means as much as 5–10 c.cm. of duodenal juice may be obtained in favourable cases and its tryptic activity tested. I have no experience of these methods, and therefore am not in a position to judge of the value of the indications which they afford, nor of the degree of discomfort to the patient which their application may entail. It is obvious that there are possibilities of fallacy, and that, whereas the finding of trypsin in the juice affords positive evidence that pancreatic secretion is entering the duodenum, the failure to find it in the fluid obtained is far less conclusive as evidence of inefficiency of the gland.

Of methods which test the tryptic power of the fæces that of Oskar Gross is most often employed. It is based upon the digestion of casein by an akaline extract of the fæcal material. Failure to digest casein offers strong evidence of pancreatic inefficiency, but, seeing that other ferments in fæces can act like trypsin, a positive outcome of the test, unless very pronounced, has less value.

What may be called the messenger tests are of several kinds. Thus Sahli administered capsules of gelatin hardened by formalin, and enclosing a drug easily detected in the urine or saliva. Provided that the capsule is well made it is only amenable to tryptic digestion, and escape of the drug is taken to indicate tryptic activity; but a negative finding is far from conclusive. The capsule may resist tryptic digestion, especially if its journey along the alimentary canal be unduly rapid. It is only necessary to mention Schmidt's beef cube test, and Kashiwado's in which stained nuclei from the calf's thymus are swallowed, mixed with lycopodium granules, the latter to serve as indicators of the part of the fæces to be searched. Sladden, who tried this test on several of my patients, obtained no very encouraging results, and compares the search in the bulky fæces of a patient with pancreatic disease to the proverbial hunt for a needle in a haystack. It seems to me preferable to rely rather upon such gross phenomena as creatorrhœa and steatorrhœa as indicators of inefficiency of the pancreas, than upon the somewhat uncertain responses of these messenger tests.

Carbohydrate Digestion.

To pass on to the consideration of carbohydrate digestion: It was shown by Wohlgemuth, whose observations have been abundantly confirmed, that a diminished output of diastase in the stools, and an increase of that enzyme in the blood and urine, are common phenomena in cases of lesion of the pancreas, and it would seem that we are here dealing with a sort of colourless jaundice, due to an obstructed flow of the pancreatic juice into the intestine, or else to a direct escape of diastase into the blood, comparable to that of lipase, which brings about fat necrosis. But there are indications that the explanation of neither of these events may be so simple. However this may be, the estimation of diastase in the urine affords one of the best and most useful tests of the integrity of the pancreas, and at the same time one of those most easily and rapidly carried out. This last is an important matter when we are dealing with acute conditions, in which delay of surgical interference may greatly lessen the prospect of its success. The diastase and adrenalin mydriasis tests may be carried out within an hour, whilst the patient and the theatre are being prepared for an operation. But the diastase test shares the uncertainty which pertains to pancreas tests in general. Instead of the normal 10 to 20, or even 30, units, to use the accepted measures of the test, a patient with pancreatic disease may excrete in his urine 50, 100, or even 200 units. On the other hand, another patient similarly affected may show a normal diastase excretion. Mackenzie Wallis emphasises the fact that the diastase increase is a temporary incident, most conspicuous in the earlier stages of a case. Repeated examinations at intervals may reveal a quicker or slower decline of the diastase output until normal, or even subnormal, figures are reached. Thus it comes about that whereas a conspicuous excess of diastase in the urine is strongly suggestive of disease of the pancreas, a normal excretion, such as was found by Spriggs and Leigh in their case, in no way excludes even advanced disease of that gland.

Nor must it be forgotten that in many cases of renal disease the power of the kidney to excrete diastase is so seriously impaired that its estimation in the urine is utilised as a test of renal efficiency. This deprives the indications of most of their value, for our purpose, in cases with albuminuria. Again, like Loewi's reaction, the diastase test errs on the side of excessive delicacy. Both tests may give positive answers when, so to speak, the pancreas is merely worried by adjacent disease. Thus, when both these tests yield positive findings, strong evidence, stronger by far than either alone supplies, is afforded that the pancreas is at least concerned in the malady; but, apart from other indications, they are in no way conclusive. Of the two, I attach greater importance to the diastase findings. Undoubtedly the failure of both tests in no way excludes serious pancreatic mischief.

The Evidence of Failure of Internal Secretion of the Pancreas.

There remains to be considered the evidence of failure of internal secretion of the gland. Since the classical researches of von Mehring and Minkowski glycosuria has occupied a foremost place among the signs of pancreatic lesions, but from the clinical standpoint it is far from fulfilling the promise held out by physiological experiments. Whereas it is highly probable that the pancreas is concerned in all cases of glycosuria, save perhaps those in which the proportion of sugar in the blood is below the normal, it may well be that in most cases of diabetes the hyperglycæmia and glycosuria result from a disturbance of the normal balance between the pancreas and other endocrine glands, with the result that its internal secretion is inhibited or overpowered. We know that an excess of thyroid secretion may cause glycosuria although the

pancreas be intact, and the same holds true for pituitary secretion and adrenalin.

On the other hand, experiments show that a small residue of pancreatic tissue may avert glycosuria, and it is a matter of common knowledge that the gland may be gravely damaged, and even to all appearance destroyed by disease, and yet the patient may excrete no sugar in his urine. Indeed, it may be said that, except in cases of chronic pancreatitis, glycosuria is an uncommon symptom of pancreatic disease. I am inclined to think that daily observations throughout the illness would reveal the presence of sugar in the urine at times in many more cases than appears at present. In an acute case I have met with it in one single specimen, and never afterwards. In cases of carcinoma of the head of the pancreas glycosuria is less rare than might be expected, seeing how large a part of the gland usually escapes invasion and how little time is afforded for the development of secondary changes. Mirailié [21] found it in 13 out of 50, and Guillon [22] in 20 out of 71 cases.

Speaking generally, the absence of glycosuria affords no argument against the presence of disease of the pancreas, but in not a few cases its presence supplies the crowning evidence in support of a diagnosis based upon other findings. Lastly, even those who attribute all diabetes to disease of this gland will hardly maintain that the presence of glucose in the urine is in itself sufficient evidence of such disease. Even in chronic interstitial pancreatitis glycosuria is by no means always present, and Opie [23] attributes the difference in this respect to differences in the incidence of the lesion, which in some cases involves, and in others spares, the islands of Langerhans.

Short of actual glycosuria, the patient's tolerance for glucose may be so far lowered that quantities of that sugar, far smaller than are required to induce glycosuria in a healthy subject, cause glucose to appear in the urine. Thus tests of sugar tolerance are among the diagnostic means at our disposal, but it must be remembered that almost any disturbance of the balance of the internal secretions leads to an alteration, either a raising or a lowering of glucose tolerance.

Cammidge's reaction, which may be fitly referred to in this place, is a phenomenon of much interest, the further investigation of which may throw light upon important metabolic events. It is undoubtedly connected with pancreatic derangements, and when observed supplies a contribution to the building up of a diagnosis. But it shares the uncertainty of other pancreatic tests, and may fail us in cases of severe disease of the gland, especially when the disease has reached an advanced stage. So it is natural that many prefer to employ methods which are less time-absorbing, and less at the mercy of small errors of technique. This test has suffered from the fact that too much has been expected from it, perhaps that too much has been claimed for it; and because it has not proved so decisive as was hoped, its utility has not received the credit which it deserves. Of Cammidge's iodine coefficient method, which is a development of his original test, I have had no experience.

Diagnosis of the Nature of the Lesion.

In this survey of the methods at our disposal for the diagnosis of lesions of the pancreas I have presented to you the separate pieces of a jig-saw puzzle. Only when the several pieces have been fitted together can we form a distinct clinical picture of pancreatic disease. Nor must we forget that when we have determined the seat of a lesion we have attained to only half of a diagnosis. We need to diagnose the nature of the lesion also, and as it happens this is often, in the conditions under discussion, the less difficult problem of the two.

In the endeavour to diagnose the nature of the more common diseases of the pancreas, such as acute pancreatitis, carcinoma, cysts, and chronic interstitial pancreatitis, we rely mainly upon the evidence afforded by physical signs and symptoms. Here clinical experience, when fortified by the experience gained in the post mortem room, is our best guide, although we may derive no little help from the grouping of the responses of the various tests. Even pancreatic calculi have been diagnosed and removed with success; but it is probable that there will long remain a residuum of cases in which we have reason to believe that the pancreas has been damaged by disease, but in which the nature of the lesion cannot be determined with any degree of accuracy.

In order to illustrate some of these aspects of my subject it will be necessary to place before you brief records of a few characteristic cases, and to indicate the steps by which a diagnosis was arrived at in each instance. The examples chosen were wholly unlike in their general features, and had little in common beyond the fact that in all but one of them the pancreas was, or is, undoubtedly implicated in disease. Each one illustrates some special diagnostic points.

CASE 1.—A man, aged 50 years, a street salesman, was admitted to hospital complaining of abdominal pain. Seven weeks previously he had been thrown from a van, struck his head and abdomen, and was rendered unconscious for a short time. After the accident he suffered from severe pain in his back and vomited each morning. Three days later he returned to work, although he felt very unwell and the vomiting continued. A fortnight before his admission he noticed swelling of the upper part of the abdomen, and was obliged to loosen his belt. Five days later he was seized with a violent pain, of sudden onset, with sweating and collapse. The pain was relieved by hot fomentations. From that date the abdominal swelling increased, the vomiting persisted, his bowels were confined, and he suffered much from thirst. He was brought to the hospital after a second attack of severe abdominal pain. The man's appearance was suggestive of grave illness; his expression was anxious, his skin moist, and there was a slight degree of cyanosis. His temperature was only 99°, his pulse 110, and respirations 24 in the minute. Situated in the upper part of the abdomen, midway between the xiphoid cartilage and the umbilicus, was an ill-defined elongated mass, overlapped in part by the gastric resonance. A band of resonance, an inch and a half wide, separated the mass from the hepatic dullness. The tumour did not move with respiration, and no fluctuation could be made out. The abdomen was somewhat distended, but the muscles were not rigid. There was no free fluid in the abdominal cavity. The patient complained of severe pain in the back, across the lumbar region. The mass was very tender, but the greatest tenderness was over the left flank.

It is worthy of note that there was exophthalmos of slight degree; von Graefe's sign was pronounced, and he wrinkled his forehead very little when he looked upwards. A well-marked tache could be elicited, but there was no tremor of the hands. The physical signs and symptoms pointed to a subacute pancreatitis, following the injury to the abdomen, and when a specimen of urine was obtained, and found to contain sugar, little doubt remained as to the correctness of the diagnosis. My colleague, Mr. Waring, saw the patient with me and concurred, and an operation was decided

upon. Meanwhile, Dr. Graham estimated the sugar in the blood at 0·21 per cent.; Loewi's reaction was positive, but not of an extreme degree, and Dr. Mackenzie Wallis found 50 units of diastase in the urine. At the operation the diagnosis was confirmed. The pancreas was explored and drained. The man lived six weeks after the operation. On the third day Moebius's sign was present, and von Graefe's persisted, but all the eye signs disappeared before the end. A second specimen of urine, obtained before the operation, contained no sugar, and none was found at any subsequent examination.

CASE 2.—In March, 1919, a carman, aged 59, was admitted to my wards deeply jaundiced, and with a history of three months' illness. On examination, his liver was found to be greatly enlarged and of smooth surface; the gall-bladder was not palpable. Some enlarged glands were felt in the abdomen. Occult blood was found in the stools, but urobilin was wholly absent; signs which suggested that a malignant growth had occluded the bile-duct. Although the clinical features were so unlike those of a classical case of carcinoma of the head of the pancreas, so well described by Bard and Pic,[24] in that the liver was so large, the gall-bladder was not palpable and the patient was neither emaciated nor unduly feeble, the possibility of such a growth was considered, as also that of a malignant growth originating in the bile-ducts. It soon became evident that wherever the growth started, the pancreas was implicated, and for the following reasons. Adrenalin caused a conspicuous mydriasis on several occasions; the urinary diastase amounted to 125 units; the total fats of the fæces constituted no less than 70 per cent. of the dried material, and many undigested striped muscle fibres were seen in the fæces. A week after his admission sugar appeared in the patient's urine for the first time, and the glycosuria persisted until his death. The average daily output of glucose was about 35 g. The fat content of the fæces, which was far greater than the jaundice could explain, increased as time went on, whereas the urinary diastase fell gradually from 125 to 60, 25, and 30 units, figures scarcely above the normal. The patient died after he had been in hospital two and a half months. At the autopsy carcinoma of the head of the pancreas was found; there were no secondary growths in the greatly enlarged liver, which had completely hidden the gall-bladder, which latter, although greatly distended with bile, had never been palpable during life.

CASE 3.—The next case to which I shall refer could not be subjected to any systematic investigation. A man, age 53, was first seen by me in October, 1910, at the request of his medical attendant, Dr. Robbs. His complaint was that for six months past he had passed oil with his stools, which became solid fat on cooling. In 12 months he had lost a stone of weight. He suffered no pain of any kind. Nothing abnormal could be found on examination of his abdomen; his liver was just palpable; there was neither fullness nor tenderness in the region of the pancreas, and there was no jaundice. His urine contained neither sugar nor albumin.

When I saw the patient again, in June, 1913, he had lost another stone but had developed no fresh symptoms, and his urine was still free of sugar. He was still able to lead an active life. Loewi's test gave no mydriasis, and the urinary diastase did not exceed the normal. Dr. Cammidge examined his urine and fæces in January, 1914, and obtained a positive reaction with his test. The total fat in the dried fæces amounted to 51·2 per cent., and of this only 4 per cent. was in the form of soaps. There was obvious creatorrhœa with many undigested muscle fibres in the stools, and by means of Gross's test casein digestion by fæcal material was found to be very incomplete. Dr. Robbs tells me that now, in 1920, the patient's health is better than for some time past, and he has gained seven pounds of weight during the past six months.

CASE 4.—The last case is that of a Belgian refugee, aged 32, who was admitted to my wards in January, 1915. For three years he had been liable to paroxysmal attacks of pain, referred to the region between the xiphoid cartilage and the umbilicus. During the attacks, which were obviously very severe, the patient assumed a position of opisthotonos, but he never vomited. It was suspected that he might have a pancreatic calculus, but the X rays showed no shadow in that region. Loewi's reaction was conspicuously positive, and the urinary diastase was at first 100 and afterwards 50 units. There was no excess of fat in the stools, no glycosuria, and only 0·12 per cent. of sugar in the blood. Thus the only indications of pancreatic disease were the position of the paroxysmal pain, the excess of diastase in the urine, and the adrenal mydriasis. Our investigation of his symptoms was much hampered by the fact that he spoke only Flemish and a very few words of English.

A month after his admission he passed a large tarry motion. A few days later Mr. Waring performed gastro-jejunostomy. A few days after the operation the patient developed broncho-pneumonia, with maniacal delirium, of which he died. At the autopsy a chronic ulcer was found in the second part of the duodenum, three-quarters of an inch in diameter and adherent to the pancreas and adjacent structures. The note describes the pancreas as normal to the naked eye.

If we review these four cases we notice how widely different were the clinical pictures which they presented. In the first case the diagnosis rested mainly upon the clinical signs and symptoms, but several tests of pancreatic efficiency supported the clinical diagnosis. In the second case, that of carcinoma, the evidence of a lesion of the pancreas rested largely upon disturbances of the external and internal secretion of the gland, but was quite conclusive. The only point in doubt was the primary seat of the growth. Except the intense jaundice the clinical signs did not afford much help.

In the third case the associated steatorrhœa and creatorrhœa leave no doubt that the patient is suffering from a severe pancreatic lesion, and Cammidge's test gives further support to this view. Presumably the duct is obstructed, and the pancreas is the seat of interstitial changes. The absence of pain does not exclude the presence of calculi. The failure of the adrenalin and diastase test in no way invalidates the diagnosis. The case resembles one described by T. J. Walker,[35] of a patient whose steatorrhœa persisted from the age of 62 until his death at the age of 90; whose pancreas was found to be completely obsolete and replaced by fat, and the duct was studded with calculi. In cases in which a like syndrome is presented with glycosuria in addition the patient's health is much more seriously impaired, and the prognosis is far more unfavourable.

In the last case, that of the Belgian, we can hardly escape the conclusion that the disturbance of the pancreas by the adjacent ulcer was the cause of the increase of urinary diastase and of the adrenalin mydriasis.

In a case of bronzed diabetes, which has been described at length elsewhere,[20] we employed several pancreatic tests. Of these, Loewi's test, Schmidt's beef-cube test, and the glycosuria all pointed to implication of the pancreas, whereas Cammidge's test, the estimation of fat in the fæces, and the determination of the tryptic and diastatic activity of the stools gave no indication of damage to that gland. After death the pancreas was found to be fibrotic and loaded with iron-containing pigment.

In the case of congenital steatorrhœa, on the other hand, there was no creatorrhœa, the fæces digested casein; Sahli's capsule test and that of Schmidt, a normal diastase content of the urine, and the absence of adrenalin mydriasis, all tended

to acquit the pancreas. Cammidge's test alone, kindly carried out by its author, was found to give a "slightly positive result."

TABLE II.

Case.	—	Loewi's test.	Fatty stools.	Creatorrhœa.	Casein digestion test.	Sahli's test.	Schmidt's test.	Urinary diastase.	Glycosuria.	Jaundice.	Cammidge's test.
1	Subacute pancreatitis.	+	−	−	−	−	−	+	+	0	−
2	Carcinoma of head of pancreas.	+	+	+	−	−	−	+	+	+	−
3	? Blocked duct. Chronic pancreatitis.	0	++	+	+	−	−	0	0	0	−
4	Duodenal ulcer adherent to head of pancreas.	+	0	0	−	−	−	+	0	0	−
5	Bronzed diabetes. Chronic pancreatitis.	+	0	?	0	−	+	−	+	0	0
6	Congenital steatorrhœa.	0	++	0	0	0	0	0	0	0	?

+ signifies positive. 0 signifies negative.
− signifies not tried. ++ signifies true steatorrhœa.

It will be evident, from all that has gone before, that practically every sign, symptom, or test may fail us at times, and that in each individual case we need to balance the quantity and quality of the evidence for and against a lesion of the pancreas. In a word, we come back to Wardell's statement of 1871. It is still true that "no symptoms are pathognomonic of pancreatic disease; an assemblage of symptoms points to the probability of its lesion." But we have at our disposal a far greater assemblage of symptoms than Wardell had, and in not a few cases the degree of probability is not to be distinguished from certainty.

That is as much as can be expected when we are dealing with a problem, the solution of which rests so largely upon circumstantial, rather than direct, evidence. If we cannot claim for the diagnosis of pancreatic disease the clear cut, direct answers obtained in some other regions of clinical medicine and surgery, we may none the less regard with complacency what has, so far, been accomplished in this field, by the application of physiological discovery at the bedside, by the coöperation of the laboratory and the ward.

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RADIOLOGY IN CHRONIC INTESTINAL STASIS.[1]

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WHEN the value of radiology in medicine was recognised its aid was sought in the diagnosis of disorders of the stomach and intestines, and it became necessary to define the normal. At first sight this appeared a simple matter. The passage of an opaque substance through the stomach and bowels of a few healthy subjects was observed, and results recorded. In practice, however, two difficulties presented themselves: (1) The text-books of anatomy represented certain shapes and positions as normal, whereas the X ray pictures showed pronounced differences, notably in regard to the stomach and transverse colon; and (2) it was found that great differences existed in the size and position of organs in people, apparently in perfect health. At Guy's Hospital an investigation was made to determine the normal; the members of the football-team were selected as likely to be ideally healthy men. They were given a bismuth meal, and the observers were astonished to find that in most of them the transverse colon had dropped so low that its middle lay in the pelvis. The observers rashly concluded that the position of the transverse colon was of no significance. This statement no one would make to-day. Recently Professor Arthur Keith invited me to address the Anatomical Society, suggesting as my subject "The Radiology of the Normal Cæcum." Feeling incompetent to instruct or even interest the Anatomical Society on this topic, I asked to be allowed to alter my terms of reference so as to read "The Displaced Cæcum," and to this Professor Keith generously consented. When, however, the day of the meeting came, I found that the title of my paper was that suggested originally, "The Normal Cæcum." I was compelled to state as my opinion that there was no such thing, strictly speaking, as a normal cæcum. If, however, I must admit a form of cæcum to be the normal, then it must be the embryonic cæcum—conical, with the appendix forming a direct continuation of the apex of the cone, and the three longitudinal bands, or tæniæ, arising at the base of the appendix and spaced symmetrically around the circumference of the bowel. As soon as the cæcum begins to fill up with solid fæces—i.e., at birth or soon after—the pressure of its solid contents gives rise to sacculation. The saccules make the cæcum protrude between the tæniæ, forcing them apart. Thus at once the cæcum begins to lose some of its efficiency as an organ of propulsion. The loss of efficiency is slight in ordinary cases, but becomes serious if, in later years, stasis causes exaggerated sacculation of the cæcum.

Effect of Civilisation.

In man the brain has developed so much in the course of thousands of years that its evolution has outstripped the rest of the body, and evolution requires millions of years for the body to adapt itself to the requirements imposed upon it by the rapid development of the mind. Professor Keith has proved to us that in the evolution of the ortho-

[1] Being a special lecture delivered at the West London Post-Graduate College on Feb. 20th, 1920.

grade apes certain parts of the large intestines, notably the flexures, have become partly fixed to the parietal walls, thus enabling them to adapt themselves to the erect posture, while the flexures are quite free in the pronograde apes. Sir Arbuthnot Lane [3] has shown how the individual, in the course of his lifetime, evolves structures which help him to adapt himself to the upright posture and the requirements of his work. The radiological study of stasis has taught us: (1) The situations in which these new structures are acquired; (2) the advantages that accrue from them; (3) the disadvantages of these defences, owing to the mechanical troubles and difficulties set up in the passage of the intestinal contents; and (4) the secondary changes that are produced in other organs.

The Support of the Viscera and the Beginning of Stasis.

In man the viscera are kept in their place normally by the muscles of the anterior abdominal wall, and in health these muscles retain their tone while the individual is upright. Professor Keith has rightly insisted upon this important truth. The power of these muscles can be dramatically illustrated by observing the effect produced when the intestine is full of bismuth and the flexures are mobile. Lately I examined a young woman in whom, in the upright posture, the flexures dropped into the iliac fossæ. When the abdominal muscles were retracted the flexures shot up to their normal level—a rise of fully 8 in. In young healthy subjects the tone of the abdominal muscles keeps the viscera in their right places without conscious effort.

The adverse cycle which leads ultimately to severe stasis starts in early childhood—nay, in early infancy. Artificial feeding leads to overfilling of the stomach. When the stomach is overfilled it weighs down the transverse colon, the contents of which solidify and stagnate. As Mr. Tyrrell Gray showed in his brilliant Hunterian lecture, the tension thus exerted on the mesentery interferes with peristalsis. In attempting to void the solid fæces, straining occurs, and leads to elongation of the pelvic colon. Thus stasis commences, and pursues its evil course unless remedial measures are taken. Great elongation of the pelvic colon is found very often in the subjects of stasis. It can only be revealed satisfactorily by a barium enema. This is given by means of a douche-can and tube, and a gum-elastic rectal end-piece with a single large terminal aperture. The rectal tube need not be more than 4 to 6 in. long. With the patient lying flat, and the douche-can raised only a foot or two, the fluid runs up readily, filling the entire large bowel within two or three minutes. When stasis exists some fluid enters the small intestine, demonstrating incompetence of the ileo-cæcal valve. To those practitioners who use a long flexible tube for "high" enemata I have to say: (1) It is impossible to pass a long tube through the pelvic colon; an X ray picture shows the tube curled up in the rectum. (2) There is no need to use a long tube, since the fluid runs up freely to the cæcum with a short tube in the rectum.

Visceroptosis and the Rôle of the Mesenteries.

If the abdominal muscles are severely exhausted by prolonged or excessive fatigue they yield to the strain, the muscles relax, and the viscera fall. This occurs in strong, healthy young subjects as the result of sporting competitions, and explains why the members of Guy's football-team were found to have prolapsed colons.

In health, prolonged exertion is required to fatigue the abdominal muscles. In stasis, however, these muscles are depreciated—like every tissue in the body—by the action of the circulating bacterial toxins. In this state the muscles "give out" after a short and moderate exertion. Here we have a good instance of a vicious circle. The study of stasis abounds in instances of vicious circles, which explain many of the difficulties attending the successful treatment of stasis.

When the abdominal muscles fail, the mesenteries act as ligaments, and support the intestines. Professor Keith has shown that the same thing occurs in many joints, notably the shoulder-joint, where the muscles form the chief support of the joint. If the muscles fail through fatigue, the ligaments become the chief supporting structures of the joint. The arch of the foot depends in health on the tonic contraction of the peronei and extensor muscles. If these muscles fail through fatigue the arch of the foot is left at the mercy of the plantar ligaments and the calcaneo-navicular ligament. These ligaments, though strong, yield at last, especially if they are reduced in strength by rheumatism or other disease; flat-foot is the result.

The mesenteries are not suitable to act as ligaments and one of two results follows: Either (1) the mesentery refuses the new function forced upon it, and slips down from its attachment; or (2) the mesentery makes an effort to adapt itself to its new rôle, and becomes thickened where the strain is greatest, with the result that some parts of the bowel are held up at their proper level. In the first case we get the phenomena presented in Glénard's classical description of visceroptosis. In this condition not only do the intestines drop, but the other abdominal viscera, notably the kidneys. The result of the dropping is to force the heavier of the viscera down to the lowest point they can reach—in some cases the true pelvis, where they press upon the pelvic organs and excite symptoms attributable to these organs. Later actual pathological changes are produced in the pelvic organs; in women retroversion of the uterus is a constant accompaniment of general dropping of the abdominal viscera.

Kinks: Their Obstructive Action.

The second result follows in more robust subjects, when nature attempts to prevent the fall of the viscera by the formation of new bands to support them. These bands constitute the kinks and membranes which have been described by Sir Arbuthnot Lane. It is entirely due to his keen observation that the significance of these bands has been realised. As he puts it, "They represent the crystallisation of lines of force." First they form a local thickening in the mesentery at the points of greatest strain. As they develop, their attachment extends around the circumference of the bowel, until, finally, they form firm bands attached to the parietes by the circumference of the bowel opposite to the mesenteric attachment.

The first of these bands is formed in the left iliac region, where the heavy iliac colon would drop if not supported. The new bands which form in this region may support the bowel at a single point only, or they may extend to the whole length of the left iliac fossa attaching the bowel firmly to the fossa. The splenic and the hepatic flexures

are also apt to form attachments to the parietal abdominal wall. The outer side of the ascending colon becomes attached in a similar way. The band with which Sir Arbuthnot Lane's name is especially associated is the ileal kink, which forms at the end of the ileum, either close to the ileo-cæcal entrance or at some point along the last six inches of the small intestine. In some cases the appendix becomes fixed by bands, and constitutes an anchor that holds the cæcum at its proper level. The terminal ileum and the appendix may be supported by one and the same band. Another band, which is frequently found and produces important clinical symptoms, descends from the lower border of the liver in the region of the neck of the gall-bladder, then expands, fan-like, with its lower border attached to the hepatic flexure and the first part of the transverse colon. This band falls in front of the pylorus, and in most cases the pylorus is attached to it, and is anchored by it when the stomach becomes loaded with food. In some cases the band is found to continue below the transverse colon, and may terminate in an ileal kink, or may even descend to the pelvis and become attached to the right ovary. All these bands and kinks can be demonstrated radiologically during the course of a bismuth meal through the alimentary tract. By means of careful fluorescent-screen examinations, both in the recumbent and upright posture, fixed points of the bowel can be ascertained by the range of movement which occurs during respiration, and by means of manual pressure. If an operation follows upon a bismuth examination, the radiologist has a chance of finding out whether he has failed to note an important detail, or whether he has correctly interpreted the shadows that were thrown upon the screen. By this means only can radiological diagnosis be advanced and perfected.

It must not be inferred that bands and kinks produce mechanical obstruction only, for every band or thickening is an irritant focus which sets up spasm, not purely local, but for a considerable distance along the bowel. If there is a kink within 2 inches of the termination of the small intestine, the cæcum, when the subject is upright, hangs down from the kinked point of the ileum, and becomes rotated on its axis. This produces torsion of the last 2 inches of the small intestine. Many observers have argued that a kink which is obstructive must lead to dilatation and hypertrophy of the bowel proximal to the kink, and that this dilatation and hypertrophy should terminate abruptly at the kink. In reply to this argument we must note: (1) If the kink is a postural one, it is only obstructive while the patient is upright and when the muscles of the anterior abdominal wall are fatigued; and (2) the spasm set up by the kink is a more important factor in producing stasis than the actual obstructive effect of the kink. Spasm is often most pronounced at the ileo-cæcal entrance, and this leads to *general* thickening and hypertrophy of the last six inches or so of the small intestine, accompanied in many cases by some degree of dilatation.

Ileal Torsion.

We must now consider the effect of the unresisted fall of the cæcum. In slight cases the cæcum can be raised while the patient is on the couch, but it falls when the patient is upright. In severe cases the cæcum falls to the deepest part of the pelvis, where it becomes impacted and cannot be raised despite efforts in every posture. In the worst cases the ascending colon follows the cæcum into the pelvis, and drops in front of it. These cases baffled me, for I could not ascertain the condition in the ileo-cæcal region because the last coils of the ileum lay in contiguity with the cæcum and their shadow could not be distinguished from that of the cæcum. Manual pressure could not be effectively brought to bear upon them; moreover, the surgeon could not demonstrate the condition at operation, for he could not examine the ileo-cæcal region without extracting it from the pelvis. It then occurred to me that by placing the patient in the oblique positions on the couch (thorax and abdomen tilted to about 45°), as had long been my practice for examining the hepatic and splenic flexures, I might get the desired results. My plan succeeded. I derived information at once striking and undeniable. In each case the main features are quite constant, though details vary. The terminal coil of the ileum is found to be dilated and tortuous; it exhibits abnormally powerful peristalsis. There is spasm at the ileo-cæcal entrance varying in degree, but in severe cases it amounts to a tight obstructive spasm. An irregularly constricted portion within an inch of the ileo-cæcal entrance is nearly always found. In front of the peristaltic wave the coil bulges. As the wave approaches the constricted portion of the terminal coil of the ileum the bismuth is seen to flow back through the coil instead of completing its journey into the cæcum. This is due to torsion of the coil near its termination—a condition brought about by the backward rotation of the cæcum in the pelvis. In the most severe cases the cæcum actually points upward behind the ascending colon, a position which imposes on the terminal ileum an axial rotation through 180°. Mr. Tyrrell Gray operated recently in one of those cases where the cæcum lay deep in the pelvis. As he drew the cæcum up into view it was seen to curl up like a periwinkle when it is extracted from its shell. It was a remarkable illustration of how ileal torsion is produced and established.

Ileal torsion causes ileal stasis, for (1) the torsion causes a mechanical narrowing of the lumen of the bowel; and (2) it interferes with the vascular and nervous supply of the coil to such an extent that partial paralysis of the constricted part of the coil is produced; (3) it induces chronic irritation in the coil and sets up reflex spasm at the ileo-cæcal entrance.

The position of the appendix is important. In most cases its proximal portion is directed upwards and backwards from the inner and hind wall of the cæcum. In this position the appendix is almost certain to cause a hindrance to the passage of the contents of the ileum into the cæcum. In a smaller number of cases the appendix is directed downwards and gives rise to no inconvenience.

The radiological study of the prolapsed cæcum throws a great deal of light upon chronic intestinal stasis.

Colitis and Diverticulitis.

The inevitable result of stasis in the large intestine is catarrh of the mucous membrane—usually called colitis. Colitis is nature's attempt to evacuate the stagnant fæcal matter by secreting mucus in the bowel. Her success is very limited. The latter portions of the large intestine become reduced in calibre by spasm, while the cæcum and the ascending colon become dilated, and remain full of stagnant matter. In the hepatic flexure region bismuth material is suspended in mucus; in the rest of the large intestine small portions of

material are propelled through the thread-like calibre of the contracted bowel as far as the rectum, where they accumulate until voided. The spasm set up by catarrh of the mucous membrane becomes so persistent at last that it rarely if ever, relaxes. A thin streak of bismuth is seen day after day in the descending, iliac and pelvic colon, while the bulk of the bismuth remains behind in the dilated cæcum and ascending colon. When the cæcum has dropped into the deepest part of the pelvis it may remain full of bismuth for days in spite of repeated attempts to evacuate it by aperients and enemata. Persistent spasm of the descending and iliac colon leads to thickening of the walls of the bowel, causing the iliac colon to be felt as a firm cord in the left iliac fossa.

What is the final outcome of colitis? If unrelieved, it may lead to new growth. The new growth may arise in the cæcum, where the long retention of stagnant fæces is a potent irritant, or at the hepatic or splenic flexure or in the iliac or pelvic colon, where the spasm produces the greatest pressure. In the iliac colon another result may follow. If this portion of the bowel is fixed to the left iliac fossa (Lane's last kink), and if the bowel wall is infiltrated with fat, as occurs in stout elderly subjects, the bowel wall may become so sodden that it yields to the pressure, and the mucous membrane is forced through the interstices of the weakened muscle of the bowel wall, and gives rise to the condition now known as diverticulitis. An infiltration of leucocytes follows the protrusion of the sacs, and a tumour appears in the left iliac fossa. The tumour formed by diverticulitis is usually mistaken, clinically, for a malignant growth, and, indeed, malignant disease not infrequently supervenes. Under suitable treatment the tumour may disappear. The iliac colon is the site where diverticulitis most frequently occurs, but it may occur on the proximal side of any obstructed or abnormally tortuous portion of the large intestine, and it has been found at the splenic and hepatic flexures and in the ascending colon. I have seen diverticulitis in all these situations. Diverticulitis is, in fact, a special sequel of colitis, which is due to chronic intestinal stasis. The recent discussion on this subject at the Royal Society of Medicine has awakened wide interest in this condition. Although the first acknowledged description dates from 1907, the discussion brought to light the remarkable fact that it had been described, illustrated, and explained by Sir Arbuthnot Lane as early as 1886 in a paper published in the Guy's Hospital Reports. Extracts from these reports were reprinted in THE LANCET of Jan. 24th, 1920, p. 220.

The Undescended Cæcum.

The congenital undescended cæcum is another cause of ileal stasis. It may seem irrational to include, as a cause of stasis, a somewhat rare condition, but as I have seen 14 cases in my own consulting room in the last four years, these cases probably exist in greater number than is supposed. The condition cannot be recognised clinically, and it is often overlooked by radiologists. In the early weeks of fœtal life the cæcum lies in the epigastrium in front of the lower part of the duodenum. As the bowel grows in length the cæcum moves to the right till it reaches the liver; thence it follows the lower border of the liver down to the right flank, where it lies in front of the right kidney, separated from it by some coils of the small intestine. Before reaching its final position in the right iliac fossa the coils of the small intestine fall, allowing the cæcum to come in contact with the posterior abdominal wall. Here it acquires adhesions which keep it in position. Occasionally it happens that the small intestine falls away from behind the cæcum prematurely, allowing the cæcum to make contact with the posterior abdominal wall at a level higher than the normal. The cæcum at once becomes adherent in its abnormal position. With the continued growth in length of the large intestine the ascending colon droops below the cæcum, and the cæcum becomes inverted. The terminal coil of the ileum is the one portion which cannot escape when the rest of the small bowel falls from behind the cæcum, for it is attached to the cæcum at the abnormally high ileo-cæcal entrance. This coil is imprisoned and caught in the bands which bind the cæcum to the posterior parietes. In well-marked cases of the abnormality the imprisoned terminal ileum is obstructed, and becomes an important source of ileal stasis. On operating on a case of this kind recently, Mr. Tyrrell Gray found the last few inches of the ileum running up behind the inverted cæcum, and becoming retro-peritoneal. The free portion of the ileum below the obstructed terminal portion was greatly dilated and hypertrophied.

The Results of Ileal Stasis.

We have now considered most of the causes of ileal stasis. They may be grouped as follows: (1) Lane's ileal kink; (2) the controlling appendix; (3) the dropped cæcum with ileal torsion; (4) the catarrhal cæcum (colitis) with spasm at the ileo-cæcal entrance; (5) the congenital inverted cæcum with the terminal ileum retro-peritoneal.

Although ileal stasis can be produced at least in these five different ways, the results are the same in all cases. These are: (1) Overloading of the lower coils of the ileum, and consequent dropping of these coils into the pelvis. (2) Continued traction on the mesentery of the small intestine, causing it to fall, little by little, from its line of attachment along the posterior parietal wall till the dropping includes all parts of the small intestine, and a kink is produced at the duodeno-jejunal junction. (3) This kink leads to distension of the duodenum.

In addition to these mechanical results of ileal stasis, there are other consequences of the gravest importance. The chief of these is microbic invasion. The stagnant contents which lie in the lower coils of the small intestine convert these coils into breeding-places for virulent micro-organisms. This microbic invasion produces its effects in two ways: (1) A general toxæmia which renders every tissue of the body unhealthy and vulnerable to the attacks of invading microbes. (2) Locally, in the digestive tract, where the microbes invade the duodenum, and even the stomach.

Invasion by Pathogenic Micro-organisms.

The invasion of the distended duodenum by pathogenic micro-organisms leads to congestion of the mucous membrane, and later to ulceration. The microbes may extend into the common bile-duct and give rise to cholecystitis and pancreatitis. Duodenal distension leads in all cases to pyloric spasm.

The invasion of the microbes determines the onset of gastric ulcer at the pylorus or in some other part of the stomach. Here, again, cancer may

bring the unhappy history to its close. In the short time available I cannot enter fully into this aspect, but it is familiar to you all, and has been described in recent books and papers dealing with the subject.[3] A well-known physician recently wrote in the journal of his hospital: "Cancer of the stomach comes generally 'out of the blue,' with no preceding history of gastric trouble." I find myself in direct disagreement with this view. I can scarcely recall or find notes of a single case which supports it. The patient may have grown so accustomed to his digestive disorder as to be unaware of it, or at any rate to make no complaint of it. The radiological investigation, however, reveals incontrovertible evidence of long-standing disorder.

Here, for instance, is the case of a lady whose gastric cancer came to her "out of the blue." On careful questioning, it transpired that she had always been inclined to biliousness and constipation. I found an enormously elongated pelvic colon, rising into the right hypochondrium, in contact with the hepatic flexure. Moreover, her cæcum was firmly impacted in the pelvis. On making a digital examination of the rectum the cæcum was encountered full of hard nodular contents, firmly pressed into the rectum. It is certain that she had for years been endeavouring to force her cæcum out through the wall of the rectum whenever she went to stool. The highest point of the alimentary tract which is affected by the change of events which follows upon ileal stasis is the cardiac orifice of the œsophagus. Persistent pyloric spasm leads to enlargement of the stomach, and then there occurs an abnormal traction upon the cardiac orifice. In certain cases this leads to persistent spasm of the cardiac orifice, causing obstruction and dilatation of the œsophagus. This condition of cardiospasm may persist for many years and lead to enormous dilatation of the œsophagus. In all cases of cardiospasm the stomach is found to be enlarged and dropped, in marked contrast to the small contracted stomach usually associated with œsophageal obstruction due to organic stenosis.

General Results of Toxæmia.

As already stated, the toxic absorption which occurs in stasis exerts its deleterious effects upon every tissue. Thus we find atheroma of the aorta at an early age in the subjects of severe stasis. Most glands suffer changes. The breasts become subject to chronic mastitis at an early stage of stasis; at a more advanced stage cystic disease of the breasts occurs, and may end in cancer. The thyroid gland suffers in various ways, the most usual change being atrophy. Exophthalmic goitre occurs in some subjects of stasis; cysts and adenomata of the thyroid are well-known sequels of stasis, and here again cancer may be the last stage. Chronic pancreatitis is one of the most constant changes in stasis. It may lead to cancer, or to glycosuria, ending in true diabetes mellitus. The joints become vulnerable to the tubercle bacillus, and to the micro-organisms which produce rheumatoid arthritis and Still's disease. In regard to tubercle, Sir Arbuthnot Lane states his conviction that tubercle cannot gain a hold on the lungs or any part of the human body except in the presence of stasis. The observations of Sir James Mackenzie go far to confirm this view. His opinion is stated in the clearest possible way in his latest book, "The Future of Medicine." Dr. A. White Robertson[4] has come to the same conclusion as the result of his studies on the effects of toxins, and has stated very definitely his conclusions that tuberculosis, rheumatism, and many other chronic diseases are the effect of the toxins which pervade the tissues as a result of absorption from the intestine in chronic intestinal stasis. Dr. White Robertson is now achieving the most far-reaching results by the treatment of tuberculosis with detoxicated coli and other vaccines.

The Treatment of Chronic Intestinal Stasis.

This can only be considered in outline. It falls under four groups: (1) Surgical, (2) mechanical, (3) medical, (4) bacteriological. If the radiological observations disclose a mechanical obstruction, such as constricting bands or a controlling appendix, surgical interference is the obvious remedy. A simple operation upon the appendix or the division of bands may bring about the desired result. Another group of cases in which operative procedure is necessary comprises the end results of stasis, such as a cicatrised ulcer in the stomach or duodenum or an impacted gall-stone. The immediate results of these operations for the relief of obstruction are so gratifying that the surgeon is apt to overlook the fact that he has not dealt with the primary cause—namely, the stasis. The medical treatment of stasis requires skill and perseverance. Treatment consists in the administration of liquid paraffin and other aperients, diet, regime, and other hygienic measures. The mechanical treatment includes massage and abdominal supports. The simplest efficient support is the "Curtis" belt, designed by Sir Arbuthnot Lane. The bacteriological treatment consists of the injection of vaccines prepared from the pathogenic micro-organisms found in the fæces, the urine, the sputum, the throat, or the gums. In the most advanced cases, when the large intestine has become diseased beyond repair by the ravages of microbes responsible for the production of colitis, all these measures may fail to give more than a slight degree of relief. In these cases the best prospect is undoubtedly found in the removal of the large intestine. It is hardly necessary to say that this is never undertaken unless all other means have failed, or are foredoomed to failure. The results of a successful colectomy are so brilliant as to seem almost miraculous, and prove beyond doubt that the diseased intestine has been the source of all the trouble.

References.—1. The Operative Treatment of Chronic Intestinal Stasis, by Sir W. Arbuthnot Lane, fourth edition, p. 207. 2. Ibid., Chapter I. 3. Gastric Ulcer, by A. C. Jordan, Proc. Roy. Soc. Med., 1913, vol. vi. (Electro-Therap. Sect.), pp. 117-138. 4. A. White Robertson (*a*) "L.P."—The Treatment of Inflammation and Sepsis by Lipoid-Paraffin Dressings, Geo. Routledge and Sons; (*b*) The Master Toxin, London, 1914; (*c*) Toxins and Master Toxins: a Study in Tuberculosis, Practitioner, March, 1915.

DEATH OF MR. G. B. ELLIOTT.—George Blacker Elliott, Major R.A.M.C., who died at Brixham, Devon, on March 22nd, in his 56th year, was the youngest son of the late Mr. W. Armstrong Elliott, F.R.C.S. Irel., of Dublin. He had been in practice for many years at Brixham, where he was on the honorary medical staff of the cottage hospital, medical officer of health for the urban district, Admiralty surgeon and agent.

THE PEOPLE'S LEAGUE OF HEALTH.—The League is urging borough councils and Poor-law guardians wherever possible to take over the buildings of discontinued military hospitals and to open them as paying maternity hospitals at a fee of about a guinea. Allowing for a minimum stay in hospital of three weeks after confinement and the increased maternity benefit of £2, only an additional £1 3*s*. or so would remain to be found by the prospective parents. The welfare committee of the Hampstead Borough Council has reported favourably on this suggestion.

THE ELECTRICAL STIMULATION OF NERVES AT OPERATION.

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DURING the years 1915 to 1917 a number of observations on this subject were made at the Horton and Manor War Hospitals at Epsom, and the results obtained, with such lessons as appear to be deducible from the experience gained in a series of some 80 cases, may be of interest.

The first matter to be decided upon is the choice of apparatus and of method, and the following fundamental considerations have led to the adoption of a certain routine.

1. Since a nerve is a small and delicate structure, which at the greatest is little thicker than a pencil, and since access is through the comparatively small opening of an operation wound, the electrode must be compact, easily held and manipulated even in the depths of a small wound, and capable of thorough sterilisation.

2. The surgeon dislikes interruption or interference with the course of his manipulations and the anæsthetist sometimes objects to prolongation of anæsthesia, so that any electrical examination should be rapid and simple.

3. With the *direct* current it is easy to burn any tissues which are in contact with the electrodes, and though it is possible to lessen this danger by suitable precautions, it is safer to use the *induction-coil* current only. The results appear to be similar and equally valuable.

After the first few attempts, with varying devices, I have come to regard the following apparatus as meeting all the requirements of practical importance:—

1. A Lewis Jones sledge coil, which is handy and portable and can be put on a chair or stool well out of the way of the operator and his assistants.

2. Two long cables are attached to the terminals of this machine, and their peripheral ends, for about 3½ or 4 feet, are cased in good rubber tubing made continuous with the insulation of the bi-polar electrode. The rubber ends can be boiled in the steriliser and thereafter form part of the sterile apparatus for handling by the surgeon and others who are "clean," while the central end above the rubber tubing is unclean, and can be freely handled by the electrologist, neurologist, or such assistant as may be appointed to control the coil.

3. The electrode I have found most useful is a small telephone plug, with the two pins bent towards each other. Around its junction with the cables rubber tape is tightly wound and the joints sealed with pure rubber solution.

Object of the Examination.

The functions of the nerve which it is possible to investigate are those of excitability and conductivity. When stimulation of the nerve above the lesion leads to muscular contraction this is mainly evidence of physiological continuity of the nerve through the area of injury—that is to say, a demonstration of conductivity. The excitability of the central end is not likely to suffer to a great extent. Contraction obtained by stimulating below the lesion is mainly evidence of the excitability of the peripheral portion of the nerve trunk. It is also a proof of conductivity in this lower part of the nerve, but the extent to which this must be considered is discussed below. It is necessary, therefore, to examine the result of stimulation of the nerve trunk above and below the level of the lesion, both before and after dissection of the nerve from scar tissue and adhesions. This is not really difficult from the surgeon's point of view, because the majority are cases of compression in scar tissue rather than of complete division, and in most of these the result of the wound and the subsequent scarring has led to deformity from normal relationships. Most surgeons therefore first look for the nerve above and below the wound level, so as to find it easily in its proper position, and then trace it down and up into the area of lesion. This rule applies to nearly all operations for nerve injury, and, indeed, the few operators who try to find the nerve directly in the midst of the area of injury soon find themselves in difficulties, and may do damage. This rule has lately been emphasised by Sir Robert Jones.

Method.

The first two or three observations were made with a pin electrode on the nerve, and a large indifferent electrode on some distant part of the body. This, however, seemed to be calculated to increase the liability of the stimulation to spread to other structures than the nerve under observation, and to tend to inaccuracy; it also led to the inconvenience of wires diverging to opposite ends of the operating table, instead of both going close together to the site of operation only. For these reasons the small bi-polar electrode was adopted for general use.

Strength of stimulus.—The coil is adjusted to yield the current which experience has shown to be sufficient to produce an obvious contraction in an average normal case. This has been regarded as the standard strength of stimulation, and provides a measure for the rough comparison of results which alone is possible under the conditions already described. Minute measurement is not practicable. The general idea is to use the constant strength and to note the results obtained under varying conditions.

Method of stimulation.—The nerve trunk, having been isolated in its undamaged portion above the lesion, is gently lifted on a hook so as to be free of surrounding structures. The electrode is then applied, so that the two pin terminals lie evenly and lightly on the trunk, the current is turned on, and the result noted. The observation is rapidly repeated, with the electrode applied to different aspects of the nerve surface, in order to pick out separate muscles with greater accuracy. The same observations are made for the portion of the nerve below the injury. Dissection is then finished, and if the nerve is found to be in anatomical continuity the tests are repeated on the liberated nerve.

Observation.—It is necessary to have good exposure of the hand, foot, or other part in which movement is to be sought for. This part need not be "clean," unless the surgeon himself is making the observation. The examination of the result of stimulation must be done with scrupulous care by someone accustomed to the business, so that a minute muscular contraction is not missed, nor the nature of a movement misinterpreted. For instance, if the median nerve has been stimulated and the thumb moves, it is necessary to be certain whether the movement is of median type and signifies a fairly sound nerve, or of ulnar type due to spreading of the current, and signifying at least much depression of the physiological activity of the median.

Discussion of Observations.

These examinations were made at first rather with a view to gaining information about the conditions present in nerve injuries than as a means of guiding the surgeon's decision. From the results obtained certain ideas quickly suggested themselves, and will be mentioned below. It is not easy to collect the information into a simple form that is easily read, but an attempt has been made in the

accompanying table to show the evidence on the main points, and from this evidence certain facts emerge.

TABLE OF RESULTS. CONDUCTIVITY AND EXCITABILITY BEFORE AND AFTER FREEING THE NERVE.

(a) *Complete Division of Nerve (25 cases).*

Conductivity.		Excitability.	
Before.	After.	Before.	After.
19 absent. 6 no test.	— —	19 absent. 6 no test.	— —

(b) *Nearly Complete Division of Nerve (13 cases).*

3 present.	1 present. 2 diminished.	1 absent. 1 much dim. 1 ? absent.	1 absent. 1 much dim. 1 diminished.
1 ?	1 no test.	1 no test.	1 very weak.
4 absent.	3 absent. 1 no test.	3 absent. 1 no test.	2 absent. 1 no test. 1 weak.
5 no test.	5 no test.	2 ? 1 absent. 2 no test.	2 ? 1 absent. 1 present. 1 no test.

(c) *Slight Division of Nerve (2 cases).*

1 present. 1 present.	1 present. 1 diminished.	1 weak. 1 present.	1 weak. 1 improved.

(d) *Scar Tissue (42 cases).*

19 present.*	5 improved. 8 unchanged. 1 absent. 5 no test.	20 present.	8 improved. 5 unchanged. 7 no test.
1 ?	1 absent.	1 ? present.	1 present.
6 absent.†	2 present. 3 absent. 1 no test.	10 absent.	4 present. 6 absent.
16 no test.	16 no test.	11 no test.	5 present. 5 absent. 1 no test.

* One had causalgia and no visible or palpable scar. One had two operations on the same nerve, at different levels.

† One had causalgia and much scar. One had two operations on the same nerve on contiguous portions, the second time not tested.

1. No response was obtained on stimulation of the nerve in any case of complete division.

2. Cases of severe injury amounting to obvious destruction of more than half the cross-section of a nerve showed some response to stimulation in a fair number of instances, and the response was in general diminished after dissection was complete. Sometimes this would suggest that the dissection had divided a few surviving fibres that were much involved in scar tissue but still physiologically active.

3. Among these and other fairly severe cases one or two were noticed which seemed to show fatigue or diminished activity, either as a result of much manipulation or of much stimulation. These were not numerous enough to dogmatise upon, but suggest a line for further investigation.

4. Conductivity when present may be of normal or diminished quality.

5. A muscular contraction in response to stimulation of the central portion of the nerve is proof not only that conductivity is present through the area of injury, but also, of necessity, that it is present in the whole peripheral portion of the nerve. Nevertheless, it is possible to have in this lower portion a diminished or even absent excitability to such stimuli as are applied in this method, although the nerve can conduct an impulse from above.

6. In the two cases where slight division was the predominant feature each gave response, one showing improvement of excitability but diminished conductivity after dissection.

7. The scar cases were, of course, a mixed set, including those which showed no macroscopic evidence of section of fibres and a greater or less degree of fibrous formation about the nerve trunk. The greater number showed a conductivity more or less preserved (19 out of 26 examined), while 20 out of 31 showed excitability. Both qualities were in general improved after neurolysis; only 1 case showed a diminution, and this was of conductivity.

8. It is only with a fairly sound nerve that anything like a general contraction of the whole muscle group is seen. Mostly one gets only a contraction of one or two larger muscles. This is a drawback in estimating the condition of the nerve from the results seen in such a state as partial division, as the contraction produced does not necessarily mean that no fibres have been divided.

9. It is easy when stimulating a seriously injured nerve to get a contraction of muscles supplied by a neighbouring healthy nerve, somewhat as is seen in ordinary clinical muscle testing. This spreading of stimulation is lessened if the nerve is held up on a hook away from other tissues, so that the maximum intensity of the current is applied to the nerve, and can only get to neighbouring tissues through its long axis.

10. It has been very instructive to examine, treat, and report on cases before operation, and then to go and see what condition was actually found on the table. It has also been a help, in deciding on the course of treatment after operation, to know exactly what has been done.

11. For these reasons, and because he has the responsibility of the greater part of the period of treatment in these cases, the electrotherapist should collaborate closely with the surgeon and should attend the operations on his patients whenever possible.

12. One way in which the experience of this series has been of interest is in the light it has thrown on the accuracy of diagnostic methods and their interpretation. The reports from the electrical department endeavoured to indicate the probable degree of injury (complete division, much scar tissue, division of a few fibres only, &c.) and comparison of the opinions given in reports before operation and the actual findings shows the following results: Diagnosis correct, 41 cases; approximately correct, 18; about half right, 11; about a quarter right, 1; quite wrong, 1. The error was due to optimistic interpretation in 13 cases and five times to pessimism.

Conclusions and Lessons.

(1) Every case should be tested, as a fair number of decisions are made easier by the information obtained and an unnecessary section of an undivided nerve may be thereby avoided. This was strongly brought home in a recent case, not included in the series, where the median nerve had been exposed high in the axilla. The surgeon, his assistant, and I all felt the mass of scar tissue into which the nerve was traced, and all thought we detected a definite end to the nerve course. On stimulation, however, contraction was obtained. Without this demonstration it is quite probable that the nerve would have been divided at its apparent cut end in order to make further dissection simpler.

(2) Conductivity is conclusive evidence of physiological continuity of nerve fibres, as also is excitability below the lesion.

(3) Improvement in conductivity or in peripheral excitability following immediately after neurolysis is suggestive of only slight compression and possibly chemical nerve-block.

(4) Absence of conductivity and of excitability, even after neurolysis, is not conclusive evidence of division, but is probably an indication of fairly severe nerve disturbance.

I have to express my thanks for the ready kindness of the surgeons who have allowed me to make my investigations while they operated: Major H. Makin and Captains G. Owen and J. McGee, of the Australian Imperial Force; Majors A. Paling, M. G. Riches, and A. F. Stabb, and Captain Lawson Whale, of the R.A.M.C.; and Mr. W. S. Fenwick and Mr. R. Warren, who were consulting surgeons to Horton War Hospital. I have also to thank Lieutenant-Colonels J. R. Lord and S. Elgee, R.A.M.C. officers commanding the two hospitals, for kind permission to publish this paper.

FATAL ANAPHYLAXIS

FOLLOWING THE PROPHYLACTIC ADMINISTRATION OF ANTITETANIC SERUM.

BY FRASER B. GURD, M.D. MCGILL,
AND
E. EMRYS-ROBERTS, M.D. LIVERP.

THAT the parenteral introduction of foreign protein in the form of antisera is not infrequently accompanied by more or less important constitutional and local manifestations of irritation or intoxication is generally appreciated. Fortunately, such symptoms consist, as a rule, simply in the development, a few (2 to 14) days after the injection, of urticarial and erythematous eruptions, and joint or muscle pains, accompanied sometimes by a certain degree of pyrexia. The patient is often very unhappy, but otherwise such examples of serum sickness are not of sufficient importance to contra-indicate the employment of sera for either prophylactic or therapeutic purposes.

From time to time, during the past 15 years, cases of severe and fatal reaction following the administration of horse serum have been recorded. The great majority of these cases have occurred among patients receiving the serum in the treatment of their infections. In the prophylactic injection of antitoxin-containing sera—e.g., antidiphtheritic and antitetanic sera—the amount of protein introduced is relatively very small and the material is commonly injected into the subcutaneous tissues. In consequence very few serious accidents have occurred.

Report of Case.

The case reported in this paper proves the possibility of a fatal reaction to the administration of horse serum in small doses. This case is reported, not as an objection to the routine injection of all wounded with antitetanic serum, but rather in order that a rare clinical accident may be placed upon record.

L./Sgt. E. was admitted to a casualty clearing station on Sept. 1st, 1916, at 10.15 A.M. A few hours previously he had received several small bomb wounds of both hands, the right thigh, and left calf. All wounds upon examination were found to be unimportant. The patient was in good general condition; he was a well-built man about 30 years of age. Pulse and temperature were normal.

As the patient had not received his antitetanic serum prior to admission, this was administered at 11.15 A.M. 750 units (U.S.A.) contained in 5 c.cm. of serum were injected subcutaneously over the right pectoralis major muscle. (There is the possibility that part of the serum was injected into the muscle.) The patient remained well until 1.30 P.M., two and a quarter hours after the serum inoculation, at which hour he commenced to vomit, and had a bloody diarrhœa. This gastro-intestinal disturbance was accompanied by a moderate degree of collapse. Between 1.30 and 5 P.M. he vomited eight times, and had six bowel movements. All bowel evacuations contained blood. The stools were watery, and contained small particles of fæces, and a moderate amount of small blood clot. The sister in charge of the case noted no blood in the vomitus.

Examination at 5 P.M. resulted in the following notes: "Pulse 104, temp. 102·8° F. Patient complains of moderate headache and thirst. There is slight generalised abdominal tenderness, no rigidity. The chest is negative, no complaint of respiratory distress, despite the fact that he is cyanosed and restless. The skin is 'goose-fleshed,' and covered with a mild erythema." From 5 P.M. to 11 P.M. the patient remained in this state of moderately severe collapse. He received water by mouth, otherwise no treatment was instituted, as his condition was not alarming.

At 11 P.M., after a slight vomiting attack, the collapsed state became very severe. He became pulseless at the radials, heart beat rose to 160–170. Extreme cyanosis supervened, and restlessness increased. During the night stimulation was pressed to the utmost. Pituitary extract, 1 c.cm. to the dose, was given every three hours. Strychnine, 1/30 gr., was given at 11 P.M., and continued in doses of 1/40 gr. every three hours. He received 3 pints of saline subcutaneously during the night, and oxygen almost continuously up to the time of death. Except for the fact that he became quieter and more comfortable while receiving oxygen, there was no response to stimulation.

At 6 A.M. on Sept. 2nd the following notes were made: "Pulse is absent at the wrist, heart-rate 180 and feeble. There is a very marked purplish discoloration (cyanotic erythema) of the whole body. This discoloration disappears upon pressure and returns very slowly. The extremities are cold. There has been no return of vomiting or diarrhœa."

Death ensued at 10.30 A.M., apparently due to cardiac failure secondary to drop in blood pressure. Respirations during the last three hours of life were at the rate of 48–54 per minute.

Note.—Patient stated that he had suffered during the past four or five years from periodic attacks of vomiting at three or four weeks' interval, always accompanied by bloody diarrhœa.

Autopsy.

Autopsy performed four hours post mortem; body is that of a well-developed, well-nourished man of, apparently about 30 years of age. Rigor mortis is moderate. Lividity is excessive, except over the centre of chest and abdomen. There is œdema of both pectoral regions (subcutaneous saline). Wounds are trivial.

Thymus is completely atrophied.

Thyroid is somewhat enlarged and contains a few minute cysts filled with colloid.

Peritoneal cavity: There is a normal amount of clear fluid, lymph nodes are larger than normal, those in the gastro-colic omentum are deep-red in colour. Appendix normal. Vessels (veins) of splanchnic area are moderately distended with fluid blood, especially those draining duodenum and the upper part of the jejunum.

Pleural cavities: Both cavities are obliterated by moderately dense adhesions.

Pericardial cavity: Negative.

Lungs: Owing to the pleural adhesions present the lungs were squeezed considerably in the process of removal. The lungs are, nevertheless, voluminous and downy, except over the posterior parts, which are boggy and dark in colour. The lungs are reddish-grey in colour and are covered over the whole surface with innumerable subpleural collections of deep purple-coloured blood. These patches vary in size from 1·5 to 5 mm. (Note: These hæmorrhagic patches are typical of those found in anaphylaxis in the guinea-pig.) Beneath the parietal pleura there is a smaller number of similar hæmorrhagic spots. The cut surface of the posterior parts exudes a considerable amount of bloody frothy fluid; the anterior portions show a dilatation of the alveoli and numerous small purplish-red spots.

Heart: Normal in size and shape. The right ventricle, especially, is filled with dark fluid blood and loose friable clot. Myocardium and endocardium are negative. Beneath the epicardium covering the auricles there are numerous small purplish spots measuring from 1 to 2·5 mm. in diameter.

Liver: Purplish in colour, normal in size and consistence. Cut surface exudes an increased amount of fluid blood. The gall-bladder is slightly distended.

Spleen: Weight about 150 g., exudes upon section a moderate amount of blood. The splenic vein is distended with fluid blood.

Pancreas: Negative, except for serous congestion.

Adrenals: Negative.

Kidneys: Congested.

Bladder: contains straw-coloured urine.

Stomach and intestine: The gut contains bile-stained fluid fæces. No blood is present. Solitary follicles are prominent. Peyer's patches are not enlarged. There is moderate superficial capillary engorgement in the stomach, particularly about both orifices.

Naked-eye diagnosis: "Anaphylactic lungs"; congestion of kidneys; chronic pleurisy; congestion of liver; multiple wounds (trivial); slight splanchnic dilatation.

Examination of heart's blood negative.

Microscopical Examination.

Examination of paraffin-embedded sections of heart, kidney, liver, mesenteric lymph nodes, and jejunum all negative but for a moderate to pronounced congestion of the small vessels, particularly in the liver, kidney, and lymph nodes.

Sections of the lung stained with hæmatoxylin and eosin and with fibrin stain reveal the following lesion. The general appearance of the sections is irregular. Different parts of the sections are composed of varying abnormalities of alveolar arrangement. In places the alveoli are compressed, their lumina being almost obliterated; in others they are greatly distended, with apparently a rupture of their walls, with the result that large irregular cavities are present. Some of the sections are composed chiefly of masses of blood clot, in which are included numerous large and small vacuoles (air bubbles). With the high power of the microscope these areas are found to represent places in which the normal alveolar arrangement is disorganised, the alveolar walls ruptured, and the resulting irregular cavities filled with red blood cells, fibrin, and serum. The arteries of the lung are normal in size and contain red blood cells; the veins are moderately distended with blood. The bronchioles are apparently contracted and many contain large numbers of red blood cells.

Discussion.

In so far as we are able to discover, the patient had not been previously wounded, nor had he received at any other time injections of horse serum. That he was an individual presenting a natural hypersensitiveness to horse serum is therefore a fair assumption. The fact that the same person is not infrequently sensitive to more than one foreign protein in all probability offers an explanation of the patient's history of repeated attacks of vomiting and bloody diarrhœa.

The foregoing case-report is that of a healthy man who collapsed following the hypodermic administration of a relatively small dose—5 c.cm.—of horse serum, and who died with symptoms during life identical with those which occur in anaphylactic shock in the dog, and with autopsy findings typical of those which are found in the guinea-pig. That the characteristic purplish congestion of the splanchnic area which is found at autopsy in dogs dying of anaphylactic shock was not more marked in our case is explained as being the result of the continuous stimulation employed in our effort to save the life of the patient.

That symptoms of respiratory spasm were not noted clinically is explained in part by the fact that, owing to pressure of work, the patient was not under constant supervision, and, more particularly, because the splanchnic reaction was predominant and so weakened the patient that expiratory dyspnœa was not sufficiently evident to be noted by the sister in charge of the case. Deficient oxygenation of the tissues during life was evidenced by the extreme degree of cyanosis.

It is now definitely established that man reacts to anaphylactic shock in one or other or both of two ways, in addition to the well-known cutaneous phenomena. Either he reacts in the manner which characterises the phenomenon in the dog—i.e., splanchnic dilatation, drop in blood pressure, cardiac failure, and death—or in the way in which the typical reaction occurs in the guinea-pig—i.e., bronchiole spasm, expiratory dyspnœa, and death from arrest of respiration.

OXYGEN AND AIR REPLACEMENT OF FLUID IN THE PLEURAL CAVITY.

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PHYSICIAN TO OUT-PATIENTS, CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST.

THE apparent complexity of the apparatus commonly employed for oxygen replacement may be the explanation of its infrequent performance. The following is a description of a simple method. All that is required is a Potain's aspirator or a home-made substitute for this, two bottles A and B, and an oxygen cylinder. The aspirator and bottles can easily be improvised. The method of making the latter is obvious, and the former can be made by using a bottle, similar to those figured but larger, with a Higginson's syringe fastened to the short tube, the action of which will give sufficient negative pressure.

One of the bottles (A) is fitted at (O) with a flexible rubber tube about 18 in. in length and a needle long enough to enter the pleural cavity, with a bore of 1 mm. to allow the easy escape of air. Morriston Davies's needle, made by Krohne and Seseman, is figured, as it is useful to have a tap, but an ordinary needle will do so long as the bore is of a sufficiently large diameter. The long tube is tapered slightly at (1). Bottle (B) is fitted at (3) with 2 or 3 in. of rubber tubing, which, when required, can be slipped on to the conical part of the long tube (1) of bottle A, and thus connect the two bottles. The long tube of this second bottle is also slightly tapered, so that a rubber tube from the oxygen cylinder can be pushed on with ease. Each long tube near the external opening can, after sterilising, be lightly packed with cotton-wool. The bottles are one-third filled with 1 in 20 carbolic acid solution.

To aspirate by means of automatic air replacement is very easy, and has been described in Halliday Sutherland's "Pulmonary Tuberculosis in General Practice."

The needle of the Potain's or home-made aspirator is inserted in the seventh or eighth interspace, just outside the line of the angle of the scapula, after first anæsthetising the track with novocaine. Complete local anæsthesia should always be assured. After withdrawing a certain quantity of the fluid—say, 10 oz.—insert the needle of bottle (A) into the inter space above, again using novocaine freely. At once, with certain exceptions which will be mentioned later, air will be drawn through tube (1), bubble through the carbolic solution, and enter the pleural cavity.

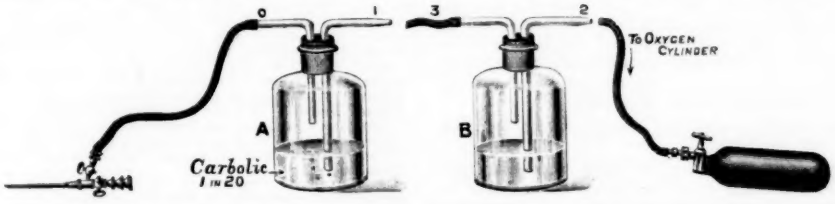
Aspiration is now continued until the chest is completely emptied, allowing the patient to recline more and more as the fluid decreases, so that at last the aspirating needle is in the most dependent part of the pleural cavity. So long as aspiration is continued air will steadily flow into the pleural cavity bubbling pretty regularly through the bottle. When all the fluid has been aspirated a bubbling hissing noise will indicate that air only is being withdrawn, and the operation can cease. It is well to leave a slight negative pressure; a little of the air, therefore, is aspirated, but not enough to produce the slightest discomfort to the patient. The needles are then withdrawn.

For oxygen replacement fill both bottles (A and B) with oxygen from the cylinder. Any type of cylinder will do. Commence aspirating as before, insert needle of bottle (A) and note the rate at which bubbles of air pass through the carbolic solution and the size of them. Now turn on the oxygen cylinder which is attached to bottle (B) and let the gas bubble through at the same rate that air is bubbling through (A). This is easily determined in a few seconds. Now connect bottles (A) and (B) and continue aspirating. Pure oxygen will now be passing into the pleural cavity. To prevent the production of a positive pressure in the chest disconnect the two bottles from time to time and see if air

is still drawn bubbling through bottle (A); if this is so there is, obviously, still a negative pressure and the oxygen bottle can be connected again. The small amount of air that enters does not matter. If, on disconnecting the two bottles, air does not bubble through (A), then keep them disconnected. Let the oxygen flow but escape into the air and continue to aspirate. Soon air will again be drawn through (A) and the oxygen bottle is again connected. This test of intrapleural pressure must be made from time to time.

Exceptions to Flow of Air.

The exceptions mentioned above, in which air does not flow into the pleural cavity, are as follows. The effusion may be under a positive pressure. This is unusual even when the fluid amounts to as much as seven or eight pints. Should it occur, however, aspiration must be continued until it is rendered negative; meanwhile, the rubber tube of the air needle can be clamped or bent, freeing it from time to time to discover by bubbles of air



when this has been effected. It is because of these cases that it is necessary to commence aspirating before inserting the air needle, otherwise fluid will be forced into the air bottle and contaminate it, and also block the air needle. Another, though unlikely, reason for air not flowing is that the needle is not in the pleural cavity. The last and most important reason is that the air tube or needle contains fluid. These must be absolutely dry and free from bubbles. It might be thought that the thoracic suction would be sufficient to clear the tube, but in practice it will be found that this is frequently not so.

Advantages of Air or Oxygen Replacement.

So excellent and weighty are the reasons in favour of air or oxygen replacement that it would seem hardly necessary to restate them. Yet some do not know of the method, others think it neither useful nor necessary, and few employ it. I am not sure that pure oxygen has much advantage over air, except possibly for a greater curative effect. It is absorbed quicker, but the gaseous exchange that occurs leaves, after a time, a state of affairs somewhat similar in either case. The more rapid initial absorption of oxygen, however, will promote a more rapid initial expansion of the lung, if it is capable of expanding. But that one method or the other is very valuable I am convinced, and for the following reasons, many of which are given in Morriston Davies's "Recent Advances in the Surgery of the Lung and Pleura" (*British Journal of Surgery*, 1913) and elsewhere.

1. It is the only method by which a pleural effusion can be completely withdrawn. This is absolutely proved by radioscopy. The necessity for the *complete* evacuation, in every case, of a large serous effusion is perhaps disputable, and will not be discussed here, though I believe it to be the best treatment. If the effusion is blood, however, complete withdrawal is advisable so as to prevent the possible, and in some cases certain, onset of septic hæmothorax. In the Statistical Reports No. 5, Medical Research Committee, "On Penetrating Wounds of the Chest," in paragraph 7, "On Infected Hæmothorax," it is stated: "We aspirate the pleural cavity as dry as possible." It is impossible to get it anything like dry except by air or oxygen replacement, and if this method has been employed the "repeated aspirations" might have been prevented. If the effusion is purulent or sero-purulent then, of course, it is essential to get rid of all of it. A pneumococcal empyema *may* clear up entirely by simple aspiration, but in these cases there is a residuum of pus which must be absorbed; and, moreover, it is dangerous to advocate any method which does not involve complete drainage or complete removal of the pus. The application of the method of replacement, however, in the treatment of empyema will be dealt with more fully later.

2. It is infinitely safer to aspirate effusions by the method of replacement. No pressure changes are created in the thorax, and the accidents which may happen with ordinary aspiration—hæmorrhage from lung or pleura, sudden death by syncope, cough, albuminous catarrh, rapid reaccumulation of fluid—do not occur.

3. It is far more comfortable for the patient. With the proper use of novocaine, which should always be freely employed, there is no pain or even discomfort, and I have on many occasions seen the patient sleep through the operation, and have withdrawn as much as 7½ pints of fluid at one time without the least discomfort or distress. This would have been impossible by any other method.

4. It is good for the subsequent X ray picture, for the detail is not obscured by fluid which has been left behind and any new growth, enlarged glands, &c., can easily be seen.

5. During the absorption of the gas steady and powerful traction is exerted on the lung.

6. Pleural adhesions are less likely to form.

7. It appears to prevent reaccumulation of fluid, and to have a definite curative value.

8. It is valuable sometimes as a preliminary to operating on a large empyema.

9. Even an empyema, especially a pneumococcal empyema, can, under certain conditions, be completely withdrawn and the unopened pleural cavity be washed out. I put this forward with diffidence, firstly lest I might appear to be forgetting the great pioneer work of Audouard, Trousseau, Clifford Allbutt and Bowditch, Hamilton Roe, Hughes, and Arbuthnot Lane, which restored to medicine the effective and forgotten treatment of this condition; and secondly because there are not sufficient statistics available to form a final and sound judgment of its value. That it is invaluable in certain cases, however, I have no doubt, and apart from certain mechanical difficulties which may arise, such as obstruction of the cannula by fibrin, it is, I believe, the operation of choice.

In fact, I would say that if a child of my own had a pneumococcal empyema I should prefer first to aspirate by means of oxygen replacement, followed

as soon as possible by an X ray examination. If the chest were clear and all seemed well I should be content. If signs of fluid reappeared, or if the temperature or general condition were not satisfactory, I might try one more aspiration. If this were not successful I would have a rib resection performed, a complete washing out of the pleural cavity by some non-irritating fluid, and immediate closure of the wound.

Lavage of the Closed Pleural Cavity.

The lavage of the closed pleural cavity mentioned above, is, I believe, new, and I have not yet tried it sufficiently often to justify definite statements about it. The method is as follows:—

After complete aspiration of an effusion by air or oxygen replacement, the tube of the air-needle is clamped, and the needle (or cannula) and rubber tube of the Potain's aspirator are left in position in the chest; the bottle part of the aspirator is removed and replaced by a funnel filled with warm sterile normal saline solution, which is allowed to run into the pleural cavity. When about 8 or 10 oz. have been run in the funnel is held below the level of the bed, and by the respiratory movements and by inducing the patient to cough all the saline that has been run in can be recovered. This process can be repeated.

As an illustrative case I will mention the following:—

A lance-corporal on the Cambrai front was admitted to the casualty clearing station with an attack of pneumonia. He developed an empyema. I explored and obtained thin pus which contained pneumococci. This I aspirated by oxygen replacement, and 15 oz. were withdrawn. Two days later, fluid having reaccumulated, I aspirated again by air replacement and withdrew 1½ pints of thickish yellow-green pus. After complete aspiration half a pint of warm normal saline was run through the cannula of the aspirator into the pleural cavity. This was run out again in the manner described above and was practically clear. The X ray picture showed a right pneumothorax with no fluid at all remaining, the pleural cavity being perfectly clear right down to the limits of the costo-phrenic space. No fluid reaccumulated for many days, the temperature remained normal, and the patient was evacuated to the base.

Remarks.

As early as 1882 Robert W. Parker, in a communication to the Royal Medical and Chirurgical Society, advocated the treatment of special cases of empyema by thoracocentesis and the simultaneous injection of filtered and carbolised air, pointing out that it was a "vis a tergo" and not a "vis a fronte" that displaced the fluid, and since this time Potain and many other workers have advocated this method in one form and another as the best. In the minds of those who have used it extensively there is unanimous agreement of its value. It is curious, therefore, that it is not more universally employed. Fig. 25 in Morriston Davies's new book on "The Surgery of the Lung and Pleura" is a striking testimony to the palliative value of oxygen replacement. It is a skiagram taken one month after the oxygen replacement treatment of a tuberculous pyopneumothorax. The lung has remained collapsed, but the pleural cavity is clear and the man has been able to resume active work.

In 1917 A. G., aged 19, was admitted to the Royal Herbert Hospital, Woolwich, with a tuberculous pleural effusion. He was extremely emaciated, pigmented, bedridden, and too weak to stand. Already he had been tapped four times and 112 oz. of fluid removed, but each time it rapidly recurred. Tubercle bacilli had been found in the effusion. On May 8th, soon after admission, I performed paracentesis by air replacement and withdrew 64 oz. The patient improved, but the effusion slowly reaccumulated, and on June 12th I aspirated again, this time by oxygen replacement; 2½ pints were withdrawn. He steadily improved. A little more fluid recurred at the base, but by June 30th he was infinitely better. He could walk some distance, had gained weight, and had a good colour. The pigmentation was much less, and he was able to go to his home in Devonshire.

I have chosen this example out of many cases of serous effusion and hæmothorax successfully treated by oxygen or air replacement as it affords evidence that the method advocated is of curative value as well as of great mechanical advantage.

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Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON THE HYDROPATHIC TREATMENT OF MALARIA.

BY THEODORE ZANGGER, M.D.,
ZURICH.

IN the treatment of malaria quinine stands first and foremost; next come high altitudes and arsenic. The hydrotherapeutic treatment of malaria is hardly known and seldom practised. Dr. Strasser, of Vienna, and Dr. Ziegelrot, of Berlin,[1] have written on the subject and adduced some cases, but comparative treatment of a series of cases has so far been wanting, at least as regards the medical literature in my reach. I am encouraged by a letter from Sir Ronald Ross in THE LANCET of Jan. 3rd to recall a series of cases which I treated three years ago.[2] He writes: "I wish we could cure all cases outright (with quinine); relapses ought not to be allowed to recur at all."

During the summer months of 1916 I had 82 convalescent German interned soldiers under my care in the Somvix Valley, above Disentis (Grisons), altitude 1300 m. = 4264 ft. Eighteen still suffered from malaria contracted in Corsica and Algiers; several were very anæmic and emaciated from underfeeding. They had all had lengthy consecutive courses of quinine treatment in French camps, and had already been two months at this invigorating health resort, still under quinine treatment. I discontinued the quinine and gave the patients the tepid "half baths" already described by me in THE LANCET.[3] The arms, legs, and chest of a patient lying in a bath

[1] Blätter für klinische Hydrotherapie, September, 1897.
[2] Annals of the Swiss Balneological Society, Heft xiv.
[3] THE LANCET, 1902, i., 1826.

half filled with tepid water (82° F.) are rubbed for five minutes in the water, then dried, and the patient is put to bed. Ambulant cases can rest for an hour and then return home. These baths were repeated three times a week for three to four weeks, the average of baths per patient being eight. The malaria came to an abrupt termination within 10 days. During five weeks only five attacks were noted, my successor at Somvix saw two abortive cases (T. under 101°), and all the 18 cases except one, who had one single slight feverish attack, were free from fever for the year during which they remained under observation. I may add that Dr. Brand [4] had similar results in typhoid fever.

The following table shows the number of severe malarial attacks per month in 18 cases under different treatments:—

	Attacks per month.
1. In Corsica and France, under quinine treatment (140 days)	107
2. In Somvix (alt. 1300 m.), under quinine treatment (60 days)	65
3. In Somvix, with tepid-bath treatment and without quinine (35 days)	5

The general health of all the patients rapidly improved, while the anæmia disappeared. If this treatment does not appear too simple for my English colleagues to try, I should be glad to hear if any of the 14,000 (or more) patients still suffering from malaria in England profit thereby.

A LARGE URETERAL CALCULUS ASSOCIATED WITH PYONEPHROSIS.

BY R. LEONARD LEY, M.B., B.C. CANTAB.,
ASSISTANT SURGEON, GREAT YARMOUTH HOSPITAL.

THE patient, a married woman, was admitted into Great Yarmouth Hospital on Feb. 2nd with a large tumour of the right flank. I saw her on admission, when she gave a history of increasing debility and latterly pain in the right side of the abdomen. Debility had been present for about two months and pain for a fortnight. She had had to get up at night about three times to micturate for a period corresponding roughly with the period of debility. She had hæmaturia about 12 years ago, but no symptoms since then until present illness.

Examination.—On examination she had a large fluctuant tumour reaching from the right loin to well below the anterior superior spine. The tumour had the shape of the kidney, moved on respiration, and was not tender. No pus or blood in urine. Pulse-rate 118. Temperature normal in morning, up to 99·6° to 101° F. at night. I took a radiogram next day and found a large stone at level of sacro-iliac synchondrosis. Diagnosis, large ureteral calculus with hydronephrosis.

Operation (Feb. 7th).—Patient was put in the usual position for nephrectomy and an incision made from angle of twelfth rib and spine down to a point 1 in. internal to anterior superior spine, and thence parallel to Poupart's ligament and 1½ in. above it to just beyond point where the deep epigastric (which was cut) passed upwards. The kidney was first exposed and separated back and front, starting from above and working downwards; it was fairly adherent and below the peritoneum was freely opened, and at the same moment as this was recognised the tumour burst and much pus escaped. The patient was at once turned over on her back, packs inserted, and the pus mopped clear. The stone could now be felt, and I cleared it and the ureter as rapidly as possible from the underlying iliac vessels, until I had got sufficient ureter free below to clamp it. The ureter was then caught in ovariotomy clamps and divided; this left the kidney attached only on its inner surface by a broad narrow pedicle. This was rapidly divided by scissors and swab pressure until the renal vessels were reached; these were found near the top of the tumour, and were clamped and divided. The peritoneum was swabbed out and carefully sutured, a long tube put in retroperitoneally down to the ureteric stump, which was ligatured, and the wound closed in layers; the tube was brought out near the top of the wound. The kidney must have contained about two pints of pus.

On examining the specimen the stone was found tightly gripped by the much thickened ureter, which was removed with difficulty. The lower part was dry, dark, and shiny, and the upper part covered with a cap of phosphates, soft and mushy on top, so that quite a lot of sand was left behind when the stone was finally shelled out. The stone was 3 in. in length and 4 in. in girth. It weighed 2 oz. 2 drs.

The patient left the hospital in much improved health, with the wound completely healed, on March 15th.

[4] Deutsche Medizinische Wochenschrift, 1887.

RUPTURE OF AN AORTIC ANEURYSM INTO THE PULMONARY ARTERY.

BY W. E. PEACOCK, M.D. DURH.

THOUGH many cases die from the exhaustion caused by the pressure and erosion before the sac ruptures, and not a few from some other disease, it is agreed that death from aneurysms of the thoracic aorta is generally sudden and caused by rupture of the sac. Rupture of the ascending aorta commonly takes place either externally, into the pericardial cavity, into the right pleural sac, into the right bronchus, or, more rarely, into the superior vena cava or pulmonary artery.

The post-mortem examination of the following case showed rupture into the pulmonary artery.

I was first called in to see the patient a few minutes before death occurred and found a well-nourished woman, aged 67. She was livid in appearance and obviously seriously ill; her pulse was small, intermittent, but not quickened. Ten minutes after my arrival she died. It appeared she had been suffering from a cough and pains in the chest for six months previously, during which time she had been carrying on her ordinary housework. She was the mother of several children and before her cough commenced had been doing hard manual work, pushing a milk wagon from house to house. Only an hour previous to my being sent for she had been out shopping when she began to "feel ill" and unable to proceed alone, so that she was assisted to her home.

An autopsy was obtained and an aneurysm of the ascending aorta, about the size of a Tangerine orange, discovered communicating with the pulmonary artery about an inch above its origin. The communication would admit a large quill and its margins were formed of organised blood-clot. There was no blood in the pericardium, the lungs were deeply congested and the aorta showed marked patchy atheroma. The brain was deeply congested, and one kidney somewhat granular and contracted; all other organs normal.

Up to the present there are about 50 recorded cases of rupture into the great veins of aneurysms of the ascending aorta, or of the aortic arch, and J. B. Herrick has recently described a case in which the sac communicated with the left innominate vein. It is surprising that many of these cases have not ended in sudden death. Herrick's case lived for six weeks, while Strickland Goodall and Kingsbury have recorded a case of rupture into the left pleural cavity in which death did not occur until over five weeks afterwards, when the patient suddenly fell back dead.

New Cavendish-street, W.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

RE-EDUCATION OF THE AMPUTATED.

A MEETING of this society was held on March 22nd, Mr. V. WARREN LOW, the President, being in the chair.

Mr. E. MUIRHEAD LITTLE read a paper on Re-education of the Amputated. Physical re-education of the maimed, he said, might be attempted by means of massage and active and passive movements of what might be called a factitious nature, or by the performance of actual work, or by the two combined. Experience had shown that although the artificial methods might alone be practicable at first, yet the sooner actual work or play were substituted the better the result. The man set to dig or do simple carpentry could continue to do so without fatigue much longer than he could repeat dull and uninteresting movements with the Zander machine. The nerve centres were far better occupied and consequently redeveloped in the purposive efforts of work. The best way to develop stump muscles was to wear and use a prosthesis; thereby the useful muscles would be developed, while those which, owing to loss of the segment to which they were attached, had ceased to be of use would be allowed to atrophy.

To obtain the best results from the natural method of training, the efforts of the patient must be supervised and intelligently guided by instructors, who, whenever possible, should have been similarly mutilated. As a general rule the disabled man should be retrained for his old trade. There was a general consensus of opinion in France that the most suitable occupation for all kinds of maimed is agriculture in its widest sense. It must be remembered that 60 to 70 per cent. of the French wounded were employed upon the land before the war; it had even been found possible to train blind men so that they could resume work among the vines, and many blind men had been returned to other kinds of land work. Great efforts have been made in France to prevent the wounded agriculturists from drifting into the towns. Amar has devised and elaborated apparatus, such as the ergometric cycle, for the exact measuring and graphic recording of work done by the respiratory and limb muscles in various kinds of labour, for showing fatigue, and even for detecting malingering, and his experience had been that 80 per cent. of war cripples were capable of re-education and 65 per cent. could be re-educated unconditionally. The remainder needed specially adapted tools, machines, or workshops.

Importance of Temperament.

The temperament of the patient was almost more important than the stump. Some men were determined to make good; others would not try. This, though true of leg cases, was more evident in arm cases. A man who had one sound hand would learn to do everything possible with that hand and would not use a prosthesis if he could help it. At Queen Mary's Convalescent Auxiliary Hospitals the first attempts at occupational training of the amputated were begun under the direction of Mr. Dudley B. Myers in 1915. The duration of the men's stay was then too short for complete technical training, but long enough to enable their capabilities and aptitudes to be discovered, and often to lay a good foundation for subsequent education. It had been astonishing to note how in a few weeks some men developed manual skill, commonly supposed to be only attainable after years of apprenticeship. When these men had been fitted with their limbs they were passed on to the Polytechnic, the Cordwainers' Technical College, Clark's Commercial College, and other centres to complete their training. The subjects taught at Roehampton included commercial training, motor mechanism, metal turning and fitting, electricity, woodworking, boot-making and repairing, and basket-making. Training in light leather work and, lectures and demonstrations on poultry-farming, were given, but were abandoned for want of sufficient support. All those who had lost the right hand were taught to write with the left. To quote Mr. Myers's report:—

"An analysis of the applications received for training shows that over 60 distinct occupations were dealt with by the employment bureau and educational workshops. No fewer than 46 per cent. of the amputated at Roehampton returned to their own employment, while training or employment involving in most cases an entire change of vocation was arranged for a further 21 per cent. The remaining 33 per cent. were passed on to the local committees to be dealt with, being themselves unwilling to consider work or to accept training except in the vicinity of their own homes."

The work done at Roehampton and at Brighton was the model on which the Ministry of Pensions had formed its training scheme.

The subject of re-education of the amputated was naturally divisible into two sections: (*a*) the re-education of the remaining parts of the amputated limb so that it might again be used with or without, but generally with, a prosthesis; (*b*) the education of the sound limb so that it might take the place and discharge the functions of the lost part. A further subdivision was concerned with the region affected, either the upper or the lower extremity; and in the case of the upper extremities the loss of both hands so profoundly affected the problem that such cases called for special consideration.

Temporary prostheses or provisional limbs are useful in themselves, and also as a means of training and development. In the case of the lower extremity, they were too much neglected in this country in the earlier years of the war, and in the case of the upper extremity they had been, and were still being, very little used. This was a pity, for no doubt many a patient, before arm-training schools were instituted, became discouraged, and discarded his artificial arm because his stump muscles had atrophied from disease, and were temporarily unequal to the task imposed upon them.

Complications.

The re-education of the amputated might be hindered by many complications, among which were: (*a*) paralysis of the stump; (*b*) ankylosis or other defect of the remaining joint or joints—e.g., flail joint; (*c*) multiple amputation; (*d*) injuries and disabilities of the sound limb; (*e*) blindness. Such complications were more difficult to deal with in the case of arm than of leg amputations. Loss of sight had not prevented St. Dunstan's from teaching arm amputees to do cabinet-making, type-writing, poultry-farming, &c. In the case of leg amputees, there were fortunately few examples in which any of these complications had absolutely prevented the patients from walking with artificial limbs, more or less well, but their re-education demanded patience, perseverance, and time.

In the earlier years of the war the number of cases was so great that the authorities, who did not properly realise the necessity of training in the use of artificial limbs, did not allow any time for this purpose. The statistics as to the usefulness of arms, which were obtained by circularising the pensioners, were so discouraging that the War Office, on the advice of the surgeons on the Advisory Council on Artificial Limbs of the Ministry of Pensions, ordered that every man who was provided with an arm prosthesis should spend at least a fortnight after receiving it in being trained in its use in an arm-training school at a limb-fitting hospital. The Rev. Captain Rowlatt Maxwell, C.F., who had lost an arm a few inches below the elbow, was appointed chief arm instructor to the Ministry of Pensions. The course of instruction which he devised was first given at Charterhouse Military Hospital and afterwards at Roehampton and in the provincial centres. In all so-called mechanical arms, except those for kinematised stumps, the principles employed by Baliff in 1818 were applied. The artificial joints were moved by means of movements of the stump and the shoulders, and even of the opposite arm. To make and coördinate these movements exactly nerve centres and paths and muscles had to be adapted and developed to perform duties at first strange to them. In time a patient who

constantly used his arm prosthesis made the movements as automatically as those of his sound hand. He had only to will to make a certain movement of the artificial appliance, and he did it without thinking of his shoulder, his stump, or his opposite arm, although one or other of these might do the work. Consideration of these new neuro-muscular arrangements and of the stereognostic sense as concerned in the use of prostheses opened up an interesting field of study for neurologists.

A few words might be added as to the re-education of kinematised stumps. The few cases admitted to the hospital for the supply of arms had been treated by the application of a Thomas arm splint, such as is used for fractures of the humerus. India-rubber cords were attached to the distal end of the splint and to the plastic motors of the stump, and the patients were directed to exercise the muscles of the motors by pulling against this elastic resistance. The strength and tension of the cords was easily varied. By using this simple appliance patients gained muscular power, and the motors were lengthened and mobilised before the prosthesis was applied. A pull of 20 lb. might be obtained from the combined biceps and brachialis motor, an amount, probably, far less than the effort of which these muscles were capable in their normal condition. In the mutilated limb, even after considerable training, fatigue was apt to occur sooner than normally. The tunnelised motors devised by Sauerbruch appeared to be less useful and more difficult to fit with arms than the club motors with bony nuclei made on the Vanghetti methods elaborated by Major M. Fitzmaurice-Kelly.

Arm Training: Interesting Tasks.

This course of arm-training did not aim at teaching any trade or industry, but the patients developed the appropriate nervous control and muscular power by doing certain tasks which were interesting to them, and at the same time the nerve centres of the remaining sound limb learnt to adapt themselves to new tasks, and the necessary muscles were coördinated and developed. Carpentry, digging, loading and wheeling a barrow, and using a sledge hammer were the chief means of training. Each man made a number of wooden articles, and as he was allowed to take them away with him as proof of his skill he was interested in making them well. This kind of training offered far more encouragement and hope to the men than any scheme of exercises could. Naturally, amputees after many operations and months in hospital became profoundly discouraged and sceptical as to the usefulness of an arm, but when they saw what others could do, and found that they could emulate them, they regained hope and confidence.

Mr. Little exhibited average specimens of the carpentry. Most of the work, he said, was done with the sound hand, the artificial limb acting merely as an auxiliary. As these would be the respective functions of the two arms in after-life this training was on the right lines. Besides the work at the bench, those who had been fitted with workers' arms learnt to use the implements for the coarse work on the land mentioned above.

Practical Training in the Use of Permanent Artificial Legs.

This was instituted from the very beginning at Roehampton. It began in the limb-makers' workshops, where the patient was made to try the limb in the rough by walking at first between two parallel wooden rails on which he could rest his hands. At each end of these rails was a large looking-glass, in which he could see how he walked, so that he might correct errors. After the limb had been completed and the limb-maker was satisfied that it fitted, the wearer came into the hands of non-commissioned officers who had each lost a limb. He attended a number of walking parades at which his errors were pointed out and advice given for their correction. These were held in and out of doors, and included walking up and down slopes and steps, and on rough as well as on smooth ground. After a week of this training the patient was usually ready to pass the surgeon and to be discharged. If he failed to walk as well as could be expected he might be put back for further practice and instruction.

When a man had long worn a provisional peg-leg without a knee-joint he was apt to develop a bad gait owing to his having had to circumduct the stiff limb in bringing it forward. Practice and perseverance corrected this. Some men did not get on with their artificial legs from various causes, but the number who did well with them was very gratifying.

Now that about 500 or 600 pensioners a month were returning to receive duplicate limbs there were opportunities of reviewing the work done in the earlier years of the war, and a number of cases of hip amputation were seen who had been able to walk several miles (up to 10 miles) a day on their prostheses. "Solvitur ambulando" is, Mr. Little concluded, the key to the problem of re-education of the leg amputee.

Discussion.

The PRESIDENT said that before the war he had been struck by the mental and physical deterioration of men who had had amputations, and had always felt that purposive work was preferable to routine exercises in their re-education. He imagined that the first thing to do was to teach the men to be optimists; this was ensured by supplying teachers who themselves had had amputations.

Mr. LAMING EVANS thought that a point might be made with regard to the existence of a stimulus. In the class of case under discussion no legal action was pending and the men were financially secure; this aided treatment materially. In the early stages of exercises where volitional power was bad he thought the Zander method useful. Nearly all physical movements were best taught by mimicry. Many cases got on better with a forearm stump used as a single finger than with an artificial hand, and the more elaborate prostheses were often abandoned or used only for dress purposes.

Dr. J. B. MENNELL spoke of amputations above the knee. Some of these amputees took to the artificial limb instinctively and without trouble, others found greater difficulty. Among the latter a limp was apt to occur like that habitual to the one-sided tabetic. This suggested the need for training of coördination, a speculation borne out by experience. Such training was based upon the anatomy of the limb. Men who walked with crutches used them in different ways, and coördination between the muscles was variously affected. He directed his first effort to restoring coördination between the muscles, combined with restoration of muscle strength by faradism. Much might be done by teaching the patients to walk in front of a looking-glass. This was followed by training the stereognostic sense. Such treatment was laborious, and particular for each individual, and required a highly trained personnel.

Mr. E. M. CORNER said that when a nerve had been divided it was practically impossible to prevent it from growing again, and recent work had shown that organisms could thus be carried down to the stump. He quoted a case in which pain had recurred in the stump after excision of nerves and after an artificial leg had seemed to be successful. The pain was so bad that the patient travelled back from the West Indies. There was an apparent elongation of the fibula, due to irritating infective scar tissue, into which the regenerating nerves had grown. The lower end of the fibula, with the cicatrix, cutaneous and subcutaneous, below it, including the posterior tibial artery and nerve, were excised. The pain ceased and pressure over the fibula could be borne. Usually in the interval between the amputation and the fitting of the artificial limb the infective scar tissue became non-irritant and non-infective through the agency of the plasma and lymph. But occasionally the nerves grew into the scar tissue, reinfecting it by carrying organisms into it, or into scar tissue which had remained infective, so that pain returned after an interval of comfort. As nerves regenerated cultures could be obtained from a certain number of them. Whether pain recurred depended upon the patient's power to combat this infection. The degree of mental deterioration had a good deal to do with the amount of success attained. It was doubtful whether it was advisable to keep

patients in hospital if what they learnt there could not be used in earning a livelihood.

Captain ROWLATT MAXWELL (C.F.) said that the first thing that had to be done in re-education concerned the psychological side. There was often much difficulty in the first few days, and a good deal of time had to be spent in encouraging the men. Their attitude was very different after being a short time in the arm-training school. There had not been much stump-training at the school, and the course was not long enough for vocational training. He was quite convinced that, were it not for the training provided, the percentage of men not using their artificial arms would be much higher. Many of those coming back as pensioners were found not to be wearing their arms because they did not know how to use them, some because they were painful, others because they thought that the pension would go if they became proficient. The training school gave an opportunity for the man to get fitted with the most suitable type of arm for him and also of having it thoroughly tested. He advocated that surgeons should pool their knowledge, find out what was being done in other countries, and combine with mechanical experts in devising suitable prostheses. Harm had been done by the exaggerated claims made in the press for the general usefulness of various forms of artificial limbs as demonstrable on specially trained men.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

EXHIBITION OF CLINICAL CASES.

A MEETING of this section of the Royal Society of Medicine was held on March 26th, Mr. J. P. LOCKHART-MUMMERY, the President, being in the chair.

Case of Hemi-hypertrophy.

Dr. HAZEL H. GREGORY showed a case of Hemi-hypertrophy. The patient, a girl, aged 2½ years, had well-marked asymmetry of the body and limbs. The condition was noticed at birth, and the mother thought that the disproportion between the two sides had not increased since. The other members of the family were similarly affected. The left upper and lower extremities, and the left side of the abdomen, chest, and tongue were all obviously larger than the right. On the other hand, the right side of the head was slightly larger than the left. The size of the right side, compared with other children of the same age, and its shapeliness, seemed to indicate that this was the normal size, and that the left was abnormally developed. The measurements were:—Arm: acromion to tip of thumb, R. 11½ in., L. 13½ in.; circumference, middle of upper arm, R. 6 in., L. 7 in. Leg: anterior superior spine to internal malleolus, R. 14¼ in., L. 15¼ in.; circumference, middle of thigh, R. 10 in., L. 11½ in. Abdomen: spine to umbilicus, R. 10 in., L. 11¼ in. Thorax: spine to mid-sternum, R. 9½ in., L. 11 in. Skull: greatest semi-circumference, R. 6½ in., L. 5½ in. The left side of the tongue and face were also larger than the right. Dr. Gregory referred to other cases, notably two recorded by Dr. R. Hutchison, in which post-mortem examination had shown that glands and lymphatic structures shared in the overgrowth. It had to be remembered that some asymmetry was the rule and had been shown to be present in 90 per cent. of normal persons.

Rheumatoid Arthritis with Nodules.

Dr. D. H. PATERSON showed a case of Rheumatoid Arthritis with Nodules in a girl aged 8. There were swelling of joints and stiffness of the neck, which had come on gradually and had been present for twelve months. Swelling of the wrists was noticed first, and in May, 1919, she was admitted to hospital and nodules were found on the elbows, in association with painful wrists and ankles. There was no heart lesion. She was regarded at that time as suffering from acute rheumatism and was treated for that condition, though the absence of heart affection in a child with nodules was commented upon. On discharge there was still a large nodule on the right elbow. Since then practically all the joints had been affected, and she had never been quite well. Before readmission in February, 1920, her neck became stiff. On readmission both wrists were thickened, and the backs of the hands were swollen; the interossei were atrophied. As well as the nodule on the right elbow, there was now one on the left. The epitrochlear glands were enlarged on both sides, and there were shotty glands along the posterior border of the sterno-mastoid muscle on the right side. Other joints were not now affected. The heart was normal; the spleen was not enlarged. The teeth were in good condition. The tonsils had been removed. The temperature had remained normal under observation. Radiograms showed no changes. The diagnosis of fibrous rheumatism had been suggested, but it was a disease which had been described in adults, and in it the nodules were more diffuse. The Wassermann reaction was negative.

Dr. FREDERICK LANGMEAD said that in view of the character of the joint swelling, the enlargement of epitrochlear, sterno-mastoid, and axillary glands, and the negative findings by X rays he fully agreed with the diagnosis. The point which interested him was the association of the nodules. Flat, fibrous, plaque-like nodules were, of course, not unusual in rheumatoid arthritis, and were often found in the same situation, but the nodules in this case were more like the nodules of acute rheumatism, and were said to vary considerably in size and to disappear quickly. Such a case seemed to support the view of those who believed that rheumatoid arthritis and acute rheumatism were due to the same infection. Rheumatoid arthritis was, however, a symptom-complex in his opinion, and capable of resulting from various infections. Perhaps the explanation of the present case was that it was one of the rare examples of rheumatoid arthritis in which the symptom-complex had followed an initial infection by the cause of acute rheumatism.

Anæmia with Splenomegaly.

Dr. PATERSON also showed a case of Anæmia with Splenomegaly in a child aged 4 months, who was under the care of Dr. F. J. Poynton. A swelling had been noticed in the abdomen for a fortnight. Since the age of 2 weeks he had been losing weight, and had always been pale. For two weeks before admission there had been loose green stools. Cardio-vascular and respiratory systems were apparently normal. The left flank was occupied by a large mass, which seemed to be the spleen, and which extended forwards to within an inch of the umbilicus and reached to the pelvic brim. The liver was also large, reaching 1½ fingers' breadth below the costal margin at the ninth rib. Lymphatic glands were not large. The stools and urine were now normal. A blood examination showed: red blood cells, 3,440,000; white cells, 18,000; hæmoglobin, 30 per cent.; colour index, 0·4. Differential count: polymorphs, 29 per cent.; small lymphocytes, 35 per cent.; large lymphocytes, 16 per cent.; transitionals, 1 per cent.; neutrophilic myelocytes, 12 per cent.: basophilic and myelocytes, 3 per cent.; normoblasts, 2 per cent.; and megaloblasts, 12 per cent. Polychromatophilia was present. The Wassermann reaction was negative. The case was regarded as one of v. Jaksch's anæmia.—Dr. F. PARKES WEBER held that considering its present size the spleen must have been enlarged at birth. The younger the child the more would one expect the blood picture to be disturbed; it was therefore not surprising to find so many myelocytes and nucleated reds.

Another Case of Splenomegaly.

Dr. PATERSON also showed a second case of Splenomegaly in a girl aged 5 years, under the care of Dr. R. Hutchison. The patient was somewhat pale and puffy, with flabby muscles and slight enlargement of the spleen and liver. The lymphatic glands were not enlarged. The girl was prone to "dirt-eating." On admission the red blood corpuscles numbered 3,680,000 and white corpuscles 7200, of which polymorphs were 46 per cent.; small lymphocytes, 32 per cent.; large lymphocytes, 19 per cent.; large mononuclears, 2 per

cent.; and myelocytes, 1 per cent. The hæmoglobin was 32 per cent. and colour index 0·4. A week later the spleen was noted to be larger, the red blood cells had diminished by about one million and the hæmoglobin by 7 per cent., while the white cells had increased to 14,000. The differential count remained approximately the same, but the myelocytes had increased to 3 per cent., and 4 per cent. nucleated red cells were noted. The Wassermann reaction was negative. The view was expressed that possibly the case was an example of a late stage of recovering splenic anæmia of the infantile type (v. Jaksch's anæmia).

MIDLAND MEDICAL SOCIETY.

Orthopædic Treatment in War Surgery.

AT a meeting of this society, held at Birmingham on March 3rd, with Mr. W. A. Loxton, the President, in the chair, a demonstration of the results of Orthopædic Treatment in War Surgery was given, and 30 illustrative cases were shown.—Dr. J. F. Atkins, of the Uffculme Limb-Fitting Centre, described various types of artificial limbs, and emphasised the importance of the retention of as long a stump as possible, and of its preparation for a permanent limb by the use of a temporary limb or plaster-of-Paris pylon. He then discussed the relative value of the various amputation operations commonly performed. The results of psychotherapy in the treatment of functional contractures and loss of function were demonstrated by the medical officers from Hollymoor, Highbury, and the Out-patients' Clinic, Broad-street, and cases of complete recovery of function were shown.—Mr. H. H. Sampson (Hollymoor) showed the results of four cases of Arthroplasty for Bony Ankylosis of the Elbow. He had retained the epicondyles, removing half the olecranon process, the greater portion of the coronoid process, and the head of the radius. The free flap of fascia from the thigh was then interposed between the bone surfaces. The cases showed a good range of movement with little lateral mobility. The removal of large flaps of fascia from the thigh had not in his experience resulted in muscle hernia.—Captain J. A. Dickson (Highbury Hospital) showed a series of cases of tendon transplantations for partial and complete loss of power in the extensors of the wrist, fingers, and thumb. He advised this operation only when nerve suture had been found impracticable. The chief points in the operation were (1) the importance of direct pull of the muscle from its origin to its new insertion; (2) the tension at the time of suture; and (3) the complete burying of the transposed tendons in their receiving tendons.—Captain Dickson then demonstrated the method adopted for gradual correction of disabilities of the wrist and hand.—Captain F. W. Stuart (Hollymoor) showed the results of bone-grafting in cases of loss of continuity of the bones of the extremities. One case was shown two years after operation. The grafted bone had assumed the size of the receiving bone, and was itself developing a medullary cavity. He emphasised the importance of the preliminary excision of scar tissue, and of making the bone graft, when used, of sufficient strength to withstand the strain of function and as long as the anatomical condition of the receiving bones would allow. Captain Stuart also showed cases to illustrate the results of Radical Sequestrotomy in the case of the Chronic Bone Sinus.—Major Naughton Dunn then showed three cases, the successful treatment of which was, he said, a result of our war experience. The first was a case of an officer with ankylosis of the right inferior radio-ulnar joint in a full supinated position. The operation, suggested by Dr. Baldwin, of San Francisco, had resulted in free complete controlled movements of pronation and supination, and consisted in removal of a portion of the ulnar just above the inferior articulation, so that the movements could take place at this false joint. The second case was the result of arthrodesis of the humerus and scapula, after complete loss of the upper half of the humerus. The patient had a short but strong arm, with free controlled movement in a certain range. The third case showed the successful treatment of a severe gunshot wound of the upper third of the thigh.

SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS.

AT a recent meeting of this society Dr. G. Rosenthal read a note on the Dangers of Autoserotherapy, which Dr. V. Cordier had emphasised at the last meeting.[1] He stated that these could be avoided by not reinoculating the fluid until it had been filtered. 5–10 c.cm. of the fluid diluted with an equal quantity of isotonic serum were poured into a sterile tube and then filtered through a Chamberland filter before use.—In a communication on Cystalgia following the Consumption of Cress, Dr. H. Leclerc reported several cases, including that of himself, in which consumption of large quantities of cress had given rise to dysuria and vesical spasm, and in one instance to priapism. Examination of the urine showed no characteristic changes. In only one case did the sediment reveal an abnormal amount of epithelial desquamation. The symptoms, moreover, were of such short duration that they were apparently due to a transient irritation of the vesical mucous membrane and not to actual cystitis. Chemical analysis of the cress showed the presence of iron, iodine, and a sulpho-nitrogenous essence, to the irritating properties of which the symptoms were probably due. The proof of this supposition appeared to be furnished by the fact that cooked cress, in which the essence did not exist, did not give rise to any symptoms. Dr. Leclerc had not been able to find any description of these properties of cress in medical literature, but a passage in the Thesmophoriazusæ of Aristophanes showed that they were well known to the ancient Greeks.—Dr. L. Rénon read a paper on the Alimentary and Therapeutical Value of Fenugreek Seeds, which he said had been employed in popular medicine from the earliest antiquity, and were still used in Egypt and Northern Africa at the present day for giving embonpoint to young women before marriage and fattening emaciated persons. Recent investigations had shown that these seeds contained most important nutritive elements. They were very rich in nitrogen and phosphorus, and contained globulin, phytin, and nucleo-albumin in considerable quantities. Unfortunately, besides an unpleasant taste, they possessed a very disagreeable odour, which impregnated the organism and became diffused in the urine and sweat. Rénon and Hénissey had been able to remedy this drawback by lixiviating the powdered seeds in 90° alcohol at the ordinary temperature. The powder so treated lost almost entirely its disagreeable odour and taste, and could be used for alimentary and therapeutical purposes. Dr. Rénon had recently employed it in doses of 8–10 g. daily in the treatment of convalescents from influenza.—In a note on the Chemotherapy of Morphinism, Dr. A. Brissemoret and Dr. A. Challamel advocated the use of berberine, associated with helenine as a demorphinisation cure. The combination of these two drugs, which presented the great advantage of being perfectly harmless, non-toxic products, afforded the patient a relief comparable to that conferred by morphia, and removed the distressing symptoms caused by the deprivation of the drug.—Dr. H. Forestier read a paper on Intravenous Injection of Colloidal Sulphur in Chronic Rheumatism, with a record of six illustrative cases.

[1] THE LANCET, Feb. 7th, 1920, p. 326.

THE MEDICO-LEGAL SOCIETY.

Medical Investigation in Crimes of Violence.

A MEETING of this society was held at 11, Chandos-street, W., on March 25th, with Mr. R. Henslowe Wellington, the President, in the chair, when Dr. B. H. Spilsbury read a paper entitled "Medical Investigation in Crimes of Violence." Dr. Spilsbury, who illustrated his remarks by the recital of famous cases, insisted on the need for the investigation, not merely of the cadaver by the usual methods, but of the surroundings, both on the occasion of the first discovery and subsequently. Such investigations, he contended, should be made by skilled medical observers and, while the first results would be found of value in the performance of the subsequent post-mortems, data obtained at such post-mortems would indicate the lines on which later examinations of the site of the alleged or suspected crime should be conducted.—In the course of the discussion that followed Lord Justice Atkin emphasised the value of the work of the Medico-Legal Society and expressed the desire that some means might be found to bring directly before coroners, chief constables, and others such points as those so ably expounded by Dr. Spilsbury. His lordship also drew attention to the difficulties attending the forensic investigation of crimes of violence which fell short of murder or manslaughter.—Sir William Collins, Earl Russell, Major Haden Guest, Dr. W. H. Willcox, Mr. A. B. Watson, Dr. J. Maughan also spoke, and Dr. Spilsbury replied.

THE LATE JOHN MACDOUGALL CLARK, M.B., CH.B. GLASG.—Dr. John M. Clark, who succumbed on March 28th to an attack of pneumonia consequent on influenza, had been for 15 months on the staff of the Pilkington Orthopædic Hospital, St. Helens. After taking his medical degree in 1916 Dr. Clark acted as house surgeon in Dr. Paterson's wards at the Glasgow Royal Infirmary, when he joined the R.A.M.C., and was for two years in German East Africa. At the Pilkington Hospital, as chief of staff under Mr. J. R. Kerr, the officer in charge, his wholehearted interest in the efficiency of the hospital and the welfare of the men will be gratefully remembered.

Reviews and Notices of Books.

AN INTRODUCTION TO THE STUDY OF CYTOLOGY.

By L. DONCASTER, Sc.D., F.R.S., Derby Professor of Zoology in the University of Liverpool. Cambridge University Press. 1920. Pp. 280. 21*s*.

THIS is not a text-book in the ordinary acceptation of the term. It aims at giving an account of the more important facts of animal cytology, but its chief purpose is to interest the student in the subject by pointing out some of the ways in which cytological investigation is related to the great fundamental problems that lie at the root of all biological research. The plan is based on courses of lectures given by the writer during six years at Cambridge. The scope will be indicated by a brief statement of the chief subjects dealt with. Without going fully into cell-physiology, the author deals with the cell, its organs, the nucleus, mitochondria and Golgi apparatus, with cell-division, amitotic and mitotic chromosomes, achromatic spindle, the centrosome and its origin, cytoplasmic division, and multipolar spindles (pp. 1–58).

While the chromosomes have attracted much attention in consequence of the probability that in them is to be found the solution of some of the fundamental problems of heredity, yet the nature and mechanism of the achromatic spindle offers problems hardly less fascinating, and perhaps equally far-reaching as regards the nature of the vital process. Having dealt with cell-division in ordinary body cells, the author proceeds to study the maturation of the germ cells, spermatogenesis, maturation of the egg and the meiotic phase, the cytoplasmic structures in spermatogenesis and oögenesis, fertilisation and segmentation (pp. 59–124). In all organisms in which sexual reproduction occurs the doubling of the number of chromosomes in the zygote is avoided by the process known as "reduction of the chromosomes"—a process which is fully explained. In the development of the egg the process is exactly analogous to that in the spermatozoon, allowance being made for the minuteness of the one and the relatively large inert often yolk-laden egg. The details of fertilisation and segmentation are set forth in a very attractive form and the probable forces at work discussed. This leads on to parthenogenesis—a mode of reproduction which occurs in nature under a number of different circumstances and most frequently alternating more or less regularly with bisexual reproduction. Artificial parthenogenesis (pp. 140-151) has recently attracted much attention, and has been more particularly studied in sea-urchins' eggs, by the action of various mineral salts and other organic acids.

The cytological basis of sex-determination is next considered, the hymenoptera, perhaps, are the best-known examples. As to germ-cell determinants, all the evidence points strongly to the conclusion that in many animals sex is determined by, or at least is correlated with, the presence or absence of a particular chromosome in the fertilised egg, or among parthenogenic animals in the egg after maturation. The theory of the individuality of the chromosomes is next exemplified and discussed (pp. 172–205). A very interesting chapter is the one on the mechanism of hereditary transmission, with full discussion from Weismann's famous theory of the germ plasm (1885) onwards. "If the facts of heredity were not so familiar they would be regarded as the most wonderful in nature, and it is not surprising that one of the chief aims of cytologists has been to find some explanation of this mechanism," and this the author proceeds to do, discussing the rôle of the nucleus, chromosome, the possible relation between Mendelian segregation and chromosome behaviour, specific chromosomes and sex-determination, and cytoplasm in development and heredity (pp. 206–265). There are 24 plates, 31 text-figures, and a useful bibliography running to 10 pages.

In this monograph zoology and physiology go hand-in-hand. The author has given a most suggestive as well as comprehensive survey and critical exposition of the newer facts and aims of cytology, but even without the great array of facts a real comparative cytology can hardly be said to exist, so vast is the field still unexplored. However, the author has made a worthy contribution to a fascinating and progressive subject.

MODERN SPIRITISM.

By A. T. SCHOFIELD, M.D. London: J. and A. Churchill. 1920. Pp. 260. 3*s*. 6*d*.

SPIRITISM, says Dr. Schofield, may be regarded either as a religion or as a science. As a religion its adherents "are now numbered by millions," the most prominent of whom, in this country, are Sir A. Conan Doyle and Sir Oliver Lodge. As a science the phenomena with which it deals may be classified as "physical" (levitation, astral emanations, materialisation of spirits, &c.), and "psychical" (e.g., communion with the dead, automatic writing, cross-correspondence, &c.). Dr. Schofield's purpose is to examine critically the claims of modern Spiritism, and to show its incompatibility with Christianity. In this endeavour he may be said to have failed conspicuously. The main substance of his book appears to have been gleaned from newspaper cuttings and extracts from books thrown together in utterly illogical order. As an example, Eusapia Palladino's conviction of fraud is laid bare, but two pages later, following a paragraph which is headed "proved facts," he describes an investigation of Eusapia at Naples, at which "three clever sceptics" (with names mis-spelt) "were absolutely convinced of the genuineness of the physical phenomena shown."

Dr. Schofield believes in demoniac possession and says that such possession by the devil, "if proved, turns the whole position of those Spiritists who declare the next world is denizened only by the disembodied spirits of the dead." He classifies cases of multiple personality among the insane, and says that they "are not very rare in asylums." In physics the author is on no safer ground. He writes that "vibrations from 16 to 36,000 per second are known to us as sounds. From 36,000 to 1,000,000,000 (a pretty large range) they are imperceptible. Above 1,000,000,000 they [presumably aerial vibrations!] are perceived as electricity. From 2,000,000,000 to 250 billions (!) (a still greater jump) the vibrations are again imperceptible. From 250 billions to 1000 billions they are again seen as light and colour, from infra-red to ultra-violet." And so on, adding an ingenuous footnote that these numbers are "wholly inconceivable."

Other examples of the same kind of imperfect knowledge are not difficult to find. It is surely high time that the medical student received adequate training in the principles of psychology and physics.

HENRY QUIN, M.D. (1718–1791).

By T. PERCY C. KIRKPATRICK, M.D., M.R.I.A., Fellow and Registrar of the Royal College of Physicians of Ireland. Dublin: At the University Press. 1919. Pp. 66. 10*s*. 6*d*.

Dr. Henry Quin is one of those of whom Shakespeare said,

> "for if our virtues
> Did not go forth of us, 'twere all alike
> As if we had them not."

For though he was a prominent physician in his day and a figure in Dublin society, yet, says Dr. Kirkpatrick, "he was soon forgotten after his death, and there is not, as far as we know, any record of his life among the published biographies of distinguished Irishmen." In August, 1918, a bust of Quin was presented to the Royal College of Physicians of Ireland by Dr. Alexander Morison, and this presentation moved Dr. Kirkpatrick to pay "a well-merited if tardy tribute to one to whom Ireland owes much." One of Quin's relatives was James Quin, the actor, who died in 1766.

Dr. Kirkpatrick found some difficulty in tracing the genealogy of Henry Quin; his father was undoubtedly Thomas Quin, a well-known Dublin apothecary, and his grandfather was presumably another Thomas Quin, a

bricklayer of Castleknock. Henry Quin graduated a Bachelor of Arts at Trinity College, Dublin, in 1737, being then 19 or 20 years of age. He then proceeded to the study of medicine, where is not known, but in 1743 he was admitted Bachelor of Medicine of the University of Dublin. After his graduation in medicine he presumably went abroad for study, as in 1749 he reappeared in Dublin as a Doctor of Medicine of Padua, and in the same year he was elected King's Professor of the Practice of Physic in the Medical School of Trinity College. In the following year he was admitted Doctor of Medicine of the University of Dublin, and in 1754 a Fellow of the College of Physicians. His appointment as King's Professor very soon put him in the way of obtaining a fashionable practice, for in 1750 he was sent for by Dr. Patrick Delany, Dean of Down, to attend his wife, the celebrated Mrs. Delany the friend of Swift, and the introducer of Fanny Burney to Court. The wheels of his life ran smoothly; in 1753 he married Miss Monck, whose brother had married a daughter of the first Duke of Portland. She brought him £5000 and an entry into the highest circles of Dublin society, where he shone not only by his "great erudition," but also by being an accomplished performer on the harpsichord. He was, in addition, a virtuoso in the matter of cameos, and attained such skill in the art of making artificial cameos and intaglios with glass paste "as even to deceive the proprietor of a fine original." He was the patron and teacher of the well-known James Tassie, who produced many and excellent copies of cameos, and he befriended and helped to train William Mossop, the medallist. Of Quin's medical work but little is known; he was seven times President of the College of Physicians, and he seems to have noted the presence of tubercles and inflammatory symptoms in two cases of acute meningitis, though, of course, he had no idea as to the nature of the tubercles. He died in 1791, leaving behind him a considerable fortune.

Of his three sons, Charles William, the second, was also a member of the medical profession, and, like his father, was interested in apoplexia hydrocephalica—i.e., acute meningitis. He wrote a book entitled, "A Treatise on Dropsy of the Brain," published in 1790, wherein he shows that he had grasped the difference between chronic hydrocephalus and meningitis. He died in 1818. His younger brother, Henry George, apparently had no profession, but was able to devote his time to art and foreign travel. He left a diary behind him, which came into Dr. Kirkpatrick's possession and from which he gives some interesting extracts. He obtained the post of Second Chamberlain in the Court of the Exchequer, which carried with it the not over-generous salary of £52 3*s*. 4*d*. per annum. He collected a small but valuable library, which he bequeathed to Trinity College, one of the books being a fine copy of Virgil, printed in 1470. Dr. Kirkpatrick's little book is a pleasant record of an interesting society, although we cannot agree in his estimate of the Quin family as remarkable. Rather we should say they were intelligent people, who had an easy time and were able to gratify their tastes.

JOURNALS.

Journal of Anatomy. Vol. LIV., Part I. October, 1919. Cambridge University Press. Pp. 1–100. 7*s*. 6*d*. net.—In the first and longest paper in this number Professor Arthur Thomson, writing on the ripe Graafian follicle, makes an important contribution to the study of the normal human structure. Owing to the plenitude of detail the paper does not easily admit of abstraction, but will repay reading in full. Professor Thomson adopts the view that the discus may be placed on any part of the circumference of the follicle, against the well-known doctrine of Nagel and his followers. He also gives reasons for supposing that the bodies which were described among the follicular cells by Call and Exner some 30 years ago are in reality groups of follicular cells which are undergoing changes that ultimately lead to the appearance of the liquor folliculi; in this, of course, he supports the opinions previously advanced by Nagel. Winiwarter has described plain muscle cells in the outer theca in the cat, and Professor Thomson claims that they are also present in the human follicular wall. An interesting experiment by Professor J. A. Gunn is incidentally introduced in this connexion, demonstrating (we believe for the first time) the presence of the contractile fibres in the ovary.—Professor F. Wood Jones, in describing voluntary muscular movements in cases of nerve lesion, has had the advantage of having seen the actual condition of the nerve in every case, and of having checked the findings by electrical test. He has produced a collection of facts of great practical interest, and some of the actions he demonstrates will probably be new to his readers. It may be pointed out that, in some things, he flogs a horse which was never alive, for much of the erroneous teaching he deplores had no support among anatomists. —Professor F. G. Parsons and Mrs. Lucas Keene deal with the sexual differences in the English skull, as seen in the classes from which medical students are drawn. While the facial index is the same, a definite distinction comes in the length, height, and interzygomatic width, and the most striking difference, perhaps, is found in the width of the palate.—Professor T. B. Johnston gives a detailed account of the ileo-cæcal region in *Callicebus personatus*, and goes into a general consideration of the morphology of the mammalian cæcum, which he considers to have been primitively an asymmetrical outpouching.—Dr. F. H. Edgeworth, dealing with the laryngeal muscles in Sauropsida, derives them from a constrictor æsophagei. Fuller description of the obliquely cut sections, with one or two reconstructions, would greatly aid comparison between the sauropsidan and mammalian conditions. —Dr. A. Blackhall-Morison describes a heart with persistent foramen primum, of clinical interest in that it was found in a woman of 43, the mother of five children.—The number closes with a memorial notice of the late Professor Alexander Macalister, from the pen of Professor E. Barclay-Smith, who was associated with him for many years. The notice is accompanied by an excellent portrait.

Journal of Hygiene. Vol. XVIII., No. 4. February, 1920. Edited by Professor G. H. F. NUTTALL, F.R.S.—The principal contributions to the February issue of this journal are two by Dr. E. C. Hort, one on the cultivation of aerobic bacteria and one on the reproduction of aerobic bacteria. The remaining papers cover a wide field of scientific activity, as will be seen in the following short notices of each communication. The first paper by Dr. Hort, dealing with the technique of the isolation of single bacteria, is a useful critical account of the numerous methods which have been advocated. Most of the methods described suffer from a number of defects, the chief being due to optical difficulties. Dr. Hort favours the perforated plate method owing to its comparative simplicity, rapidity, and inexpensiveness. How far these methods are laboratory "tricks" and of no real value is not fully discussed. Dr. Hort's principal paper deals with the reproduction of aerobic bacteria. It is the continuation of a series of papers dealing with the same subject which have been published from time to time since 1916. The main thesis of the contribution is that the simple bacteria do not divide always or only by simple fission, but also by more complicated processes.—The Diets of Labouring Class Families during the Course of the War, by Margaret Ferguson, M.A. An account is given of an inquiry as to the diets of five families during 1917 and 1918. The children of three of the families were below the average in weight and height, due probably to an insufficient supply of food. In a fourth family it was found that children who had suffered from low diet, as shown by weight and height, recovered and gained normal development when supplies became plentiful. The problem is shown to be economic. Only one of the families studied "could afford even the freedom of choice afforded by the rationing scheme."—A Polyvalent Vaccine in the Treatment of Bacillary Dysentery in East Africa, by W. H. Kauntze. The author describes in detail the symptoms and physical signs of bacillary dysentery in the African native

and the appropriate treatment. Vaccine therapy in his experience is valuable. His method of killing the organism in the preparation of the vaccine was by means of carbolic acid.—Cats and Human Diphtheria, by W. G. Savage, M.D. It has been commonly believed since the work of Klein (1888) and others that cats may suffer from a naturally acquired disease caused by the diphtheria bacillus, and that, further, they may act as carriers of this organism. This belief is rudely shaken by Dr. Savage's work. He shows that in the throat of normal cats there is found an organism morphologically resembling *B. diphtheriæ*, but differing from it in certain respects in culture, and in being non-pathogenic to guinea-pigs. Further, the examination of cats which have been in close association with cases of human diphtheria failed to reveal the diphtheria bacillus. Experimentally, the injection of cultures of *B. diphtheriæ* under the skin of kittens produced illness and death, with pathological lesions characteristic of diphtheria. But the feeding of kittens with cultures of the bacillus produced no effects, and attempts to infect the animals by swabbing the nose and throat with massive doses were uniformly negative, the organisms so introduced disappearing within 24 hours. It is apparently safe to conclude that cats are not associated in the spread of diphtheria.—A Note on "Defence Rupture" and the Action of Electrolytes, by W. Cramer and W. E. Gye. A reply, in the form of a description of experiments, to criticisms by C. Shearer in the previous number of the *Journal of Hygiene*.—The Contamination of Oysters, by A. T. Nankivell, M.D., and Sergeant J. M. Stanley, A.A.M.C. In this paper the author shows that the contamination of Poole Harbour comes in with the flood tide from the open sea.

The Journal of the Royal Naval Medical Service for January (John Bale, Sons, and Danielsson, Ltd. 6s.) has commenced the publication of papers on the Naval Medical History of the War; they will continue through the next two years and, judged by the papers that appear, will be of great importance to the medical historian. Temporary Surgeon-Lieutenant W. M. Fairlie gives an account of poisoning by nitrous gases, chiefly the result of the burning of cordite. They act in very high dilution with a period of latency, which is usually about 12 hours; early symptoms of irritation to the air-passages appear, later acute pulmonary œdema going on to frothy sputum and cyanosis, followed by acute emphysema and cardiac distension. As to treatment, emetics and atropine were of use early; later, bleeding up to 12 ounces. The viscidity of the blood observed suggests that intravenous saline might have been of use, as in cholera.—Surgeon-Commander R. C. Munday, has a paper on Ventilation and Heating of Ships, much of which has already appeared in print in Pryor's "Naval Hygiene," reviewed by us on Nov. 8th, 1919. A tabular view of the efficiency of each fan mentioned would have been useful. The heating of ships appears to be secured by putting heaters into the delivery trunks for large spaces, while in small compartments like cabins air is supplied cold and heating is secured by radiators.—Commander P. T. Sutcliffe tells how the official diets were varied through the war in consequence of the limitation of essential food-supplies at various periods.—Surgeon-Lieutenant (D.) G. E. Wood, R.N.V.R., has a very good paper on Dentistry, showing how small was the establishment of dentists when war began, and how circumstances and experience proved the need of a larger staff, and how wisely the increase was made. At first there were 23 civilian dental surgeons, all on shore; they were next sent to naval hospital ships with the Fleet; then those serving afloat were given commissions in March, 1915; then in 1918 all ashore as well as afloat were given commissions, and at the armistice there were 83 in service, many in battleships and cruisers. He mentions a case in which the patient had had three teeth knocked out, but they were treated and replaced, and became fixed quite satisfactorily.—Temporary Surgeon-Lieutenant T. Beaton gives a very valuable paper on the mental cases, which is to be continued.—The Editor expresses in Latin his regret that he is leaving—a regret all will share.

In the *Annales de Dermatologie et de Syphiligraphie* (VIe Serie, Tome 1) appears an original article by Cordier and Dechaume on Syphilitic Diabetes and Glycosuria of the Tertiary Period. The authors describe the various clinical types of diabetes that may be attributed to syphilis. In the secondary stage a mild and transitory glycosuria is occasionally observed. In the tertiary stage various forms appear: (1) a form associated with some cerebral lesion; (2) a form associated with lesions of the pancreas; (3) a type which is apparently independent of any cerebral or pancreatic lesion. In addition to the above, diabetes has been found in association with parasyphilis and hereditary syphilis. The characteristics of the different forms of diabetes are given, together with a very complete summary of previous observations on the subject. Various conditions should be satisfied before a case of diabetes is put down to syphilis: (1) the appearance of the diabetes should be subsequent to the infection with syphilis; (2) it should appear at the same time as other syphilitic manifestations; (3) antisyphilitic treatment should cure the diabetes as well as the other lesions; (4) antidiabetic treatment should be without effect. These conditions are not absolute and vary in importance as indications of the true nature of the diabetes. Indeed, according to Troller, the fourth condition is valueless, since all varieties of diabetes are to some extent improved by general treatment. The results of treatment in cases of diabetes due to syphilis are very encouraging. Large doses of arsenical compounds should, however, be avoided. The authors suggest that syphilis is the probable explanation of those curious cases of diabetes occurring in husband and wife, an association which has given rise to a hypothesis of a diabetes that is infectious in origin. In a series of 516 diabetics collected by Senator the husband or wife, as the case may be, developed diabetes subsequently in 18 cases (3·5 per cent.). No particular attention was paid to a history of syphilis, and it is possible that a careful investigation along such lines would have revealed the explanation of this conjugal diabetes. At any rate, the possibility of syphilis should always be kept in mind when dealing with such cases.

Bulletino delle Scienze Mediche. 1920. XCI. Bologna: Piazza Galvani.—This journal, edited by Professor Ercole Giacomini, enters this year the eighth volume of the ninth series. It was founded in 1829, and constitutes the official report of the Medico-Chirurgical Society of Bologna, with Professor Guido Vernoni and Professor Sherardo Forni as editorial secretaries. In addition to the report of the society's meetings in 1919, the January number contains two original communications. The first is by Professor Vernoni on the dialysable and non-dialysable alkaline content of normal and antitetanic horse serum. The alkalinity of the blood plays an important, although imperfectly understood, part in the production of "shock," as shown by Lewis, Fullerton, Moore, and others in this country, and Professor Vernoni has conducted numerous researches in this respect on the serum of normal horses and of those vaccinated against tetanus toxin. In the latter he found that the total alkalinity—i.e., both proteid and dialysable—was increased, and, moreover, was united to the proteins in a different manner to that of normal serum. The second paper is by Dr. Frank Fama on the colour reactions in protozoal blood infections to eosin. After numerous experiments he has developed a technique which seems to give highly satisfactory results. Its chief point of interest lies in the fact that the stain and the mordant are in two separate solutions. The former is a solution of 5 per cent. bromo-ammoniate of eosin and 20 per cent. methylene-blue in anhydrous methyl alcohol, the latter a solution of triphenylmethane. These two are mixed, just before use, in proportion of about 3 to 1, and the slide with the blood-smear is prepared in the usual way. The result is that the leucocytic and protozoic chromatin are coloured violet, the eosinophile granules red, the basophiles blue, and the mononuclear protoplasm pale blue. The preparations are not decolourised by xylol balsam and are permanent.

THE LANCET.

LONDON: SATURDAY, APRIL 3, 1920.

Medical Benefit in 1920.

THE Medical Benefit Regulations in their final form for the year 1920 are issued just in time to become operative on April 1st. The new features include a much larger share in the administration of the service by the professional committees. The Allocation Subcommittee now set up is a composite body equally representative of the Insurance and the Panel Committees, with a chairman chosen from the neutral members of the former. This joint subcommittee will have supervision and control over the lists of practitioners. It will frame an allocation scheme to provide for the distribution of insured persons in the area, and for the assignment of persons who have not chosen a practitioner of their own accord. Under this scheme provision must be made for the giving of emergency treatment, and only great tact and skill can make this emergency provision a success. The same subcommittee will have the duty of limiting the lists of practitioners in certain respects, and in the course of its work will presumably have to review the efficiency of practitioners working in difficult areas. The scheme as it stands is largely experimental, and may have to be revised in many areas after a year's experience of its working.

The method of distributing the practitioners' fund in any area is laid down by a distribution scheme, prepared jointly by the Insurance Committees and the Panel Committees, under which the methods of payment of the practitioners are decided, and provision is made for special payments for anæsthetics and emergency treatment, the accounts in every case being submitted for scrutiny to the Panel Committee. Payment in respect of temporary residents now takes the form of a special capitation fee, and provision is made for the payment for drugs and appliances administered by practitioners. Other changes affect the procedure of the Medical Service Subcommittee. Its term of office and method of taking evidence cannot now be decided without consultation with the local Medical and Panel Committee, whose secretary is summoned to the meeting. In one particular the action which may be taken by the Insurance Committee has been extended: on substantiation of complaint against a practitioner his practice may be reviewed with a view to the reduction of his list beyond the limits ruling in the area. A new feature in the procedure of appeal is the proviso that the Minister of Health shall, if so directed by the court hearing the complaint, state in the form of a special case, for the opinion of the court, any question of law arising in the course of the appeal, and may state his decision as to the whole or any part thereof in the form of a special case. This is a wise innovation, and should give a sense of increased security to practitioners.

The terms of service are set out in the first part of the first schedule. They include the new arrangements for the transfer of practices on retirement or death. Over this regulation there has been much bitter controversy, and the Ministry has remained unmoved by the argument that the goodwill of panel practices would be seriously affected thereby. The object of the new regulation is clearly to put the insurance practice on the same basis as the private practice, in negotiating either of which the practitioner can only claim to sell the introduction to a certain group of prospective patients. The safeguards which have been devised will enable the Allocation Subcommittee to protect the interests of panel practitioners generally, and especially the widow and friends in the case of a death vacancy. One of the clauses in this part sets out the obligations of the practitioner with regard to deputies, assistants, and partners, and in the case of a principal and assistant gives the insured person the right to require the personal services of the principal. These are the main points in which the regulations alter the existing arrangements of panel practice. Taken as a whole they are designed to improve the service, to define points which have hitherto been doubtful, and to make clear in the minds of the practitioner the obligation he undertakes in his agreement with the Insurance Committee.

Anæsthetics in Labour.

THE ideal anæsthetic during the process of labour should keep the patient entirely free from pain, should have no effect in delaying the progress of the labour, and should produce no deleterious effects on either mother or child. Are we at present capable of exercising such an ideal control by any of the anæsthetic agents at our disposal? It is quite true that by a sufficiently liberal use of chloroform we can render the process painless from first to last. We do so, however, only at the cost of a longer labour. If chloroform is so given that no pain at all is felt, it will be given to a degree which will, in the second stage, abolish the voluntary bearing-down efforts of the patient, and will in this way inevitably delay the labour, even if this delay is not further brought about by the action of the anæsthetic in weakening the uterine contractions. Similarly, "twilight sleep," when really effective as a safeguard against pain, inevitably prolongs labour, and in addition there is undoubted risk to the baby. The same arguments apply to the free exhibition of ether in labour. How does the case stand as regards nitrous oxide, the other usually available anæsthetic? At first sight it would appear that this agent, by which an anæsthesia can be produced rapidly, and as transiently as the labour-pain it is

intended to assuage, and which will have no toxic effect, should be the ideal for our purpose. As regards the less painful stages of labour indeed we may so regard it. The drawback to nitrous oxide in this connexion is that it will not really defeat the pain at the most painful stage, when the head is passing over the perineum, and thus fails us just at that time when we most require its effective help. Some practitioners, indeed, scarcely use an anæsthetic at all until this critical stage is reached. For them nitrous oxide will have little attraction. Moreover, one of the advantages claimed for it, that it does not diminish the resistance of the patient to infection, is not peculiar to nitrous oxide.

Nitrous oxide is more largely employed in obstetrics in the United States than in this country, being generally employed in the second stage of labour. In the *New York Medical Record* a recent paper by Dr. RAYMOND C. COBURN recommends this anæsthetic in a more general way, preferring it to either ether or chloroform throughout the entire period of parturition, excepting at the final stage, when, he suggests, ether can be added to the nitrous oxide or ether alone can be administered to bring about anæsthesia. His objections to the use of ether or chloroform are much those that we have already set out—that they delay the progress of labour and decrease the patient's powers of resistance, if given in sufficient amounts to relieve the patient of pain, while he rightly points out that it is the fleeting character of the anæsthetic properties of nitrous oxide that make it especially suitable as an analgesic for obstetrical conditions. But Dr. COBURN overlooks the fact, we think, that other anæsthetics, if used only to produce intermittent analgesic states, will have no effect in diminishing the resistance of the patient. If such effect is produced it will only be when the anæsthetic is pushed to the surgical degree of narcosis, in order to defeat pain, during the passage of the head over the perineum. That is to say, if they are harmful as regards the patient's resistance it is only because they are used for an end which nitrous oxide is unable to attain. Actually we doubt whether the amount of weakening of resistance occasioned by the anæsthetic is ever formidable if the latter is skilfully employed.

Chloroform in very dilute vapour can be used during labour over long periods of time without damaging the patient in any way, and without diminishing the uterine contractions. It must be used, however, with skill, with discretion, and with unremitting attention. It must be used in a manner which can hardly be expected if the anæsthetic is simply handed over to a nurse acting more or less under the supervision of the accoucheur. Indeed, one of the chief arguments in favour of the employment of nitrous oxide appears to us to be that this would necessitate the administration of the anæsthetic by a medical man. Certainly, if the conduct of a labour case is to be such as was outlined in our columns recently by Dr. VICTOR BONNEY[1]—that is to say, on strictly surgical lines—then the presence of an anæsthetist will be required more often than has hitherto been the case. Nor can we doubt that this will be all to the benefit of the patient.

Clean Milk.

CLEAN milk is coming. The dirty byre and the dirty cow have notice to go. The cow must be groomed for more important reasons than the horse. Light, ventilation, drainage, with an ample supply of water, must rule in the dairy farm, and dairy farmers are taking an intelligent view of the situation, thanks to the representations of medical science and the insistent work of public-spirited men, landowners and others. As is well known, milk in the past has shown an appalling bacteriology, the inevitable result of insanitary conditions amongst the herds. If a water-supply should yield a count of bacteria infinitely lower than that of average milk that supply would be condemned. Experience has often shown that it requires no scientific refinements to disclose the gross impurities of milk when mere filtration or sedimentation reveals a deposit of dung. Such filthy disregard of cleanly procedure promises to be a thing of the past, but even reform up to this point has taken a long time to materialise. But the Government and the people are now awake to the errors of the past and the possibilities of the future, and it is to be hoped that the movement now well begun in favour of producing clean, scientifically clean, milk will become universal.

It is interesting to recall that the propaganda as regards certified milk, now obtainable under a system of licences issued by the Ministry of Health, is no new idea. As far back as 1891 a system of certified milk-supply was suggested by Dr. HENRY L. COIT, of Newark, New Jersey. The movement soon gained the support of the medical profession in America, and a Medical Milk Commission was formed which, amongst other things, required that the dairy farmer, under a specific contract, should agree to conduct his business on well-recognised hygienic lines from beginning to end. When the commission was satisfied that these conditions were complied with, including both regular inspection of the farm and herd and chemical and bacteriological control of the milk, the producer was entitled to label the milk "certified milk." In 1909 an Act was approved providing for the incorporation of medical milk commissions and the certification of milk produced under its provision. In 1912 the American Association of Medical Milk Commissions issued and adopted methods and standards for the production and distribution of certified milk. The details of this scheme form the basis of the system now sanctioned by the Ministry of Health in this country. Licences to supply certified milk are

[1] THE LANCET, 1919, i., 775.

issued when the wholesale or retail distributer complies with conditions satisfying a representative of the Ministry of Health or of specially empowered local authorities. The herd from which the milk is obtained must contain no cow or heifer in milk or in calf, or other bovine animal kept in contact with the herd, which has not passed specified tuberculin tests. Further conditions are that—

(1) The milk must be cooled and bottled immediately after production for delivery to the consumer in bottles which have previously been sterilised by steam on the premises where the milk is produced.

(2) Every bottle must be covered with a suitable outer cap overlapping the lip of the bottle, and this cap must bear the name and address of the producer, or of the farm where it is produced, the day of production, and the words "Grade A (Certified) Milk."

(3) The milk on examination at any time before delivery to the consumer must not contain *B. coli* in 1/10 c.cm. (in each of two tubes) or more than 30,000 bacteria per c.cm.

(4) The milk must not be delivered to the consumer as Grade A (Certified) Milk more than two days after the day of production.

It has been amply demonstrated that the conditions imposed are readily workable at the dairy farm, and that the employees appreciate quickly why these hygienic steps are taken: they enter wholeheartedly into the spirit of a policy of clean milk the moment they understand the crudeness and dangers of coarse and antiquated methods of drawing milk from the cow for public consumption.

Hygienic methods of milk production will, of course, inevitably raise the price of milk to the consumer, owing to the extra precautions taken, and the work involved to supply a guaranteed pure and clean article. This advance in price amounts, after all, to the cost of security, or an insurance against risks to health, particularly in the case of young children and invalids. The thing can be done, as evidenced in the admirable model dairy farms of Mr. WILFRED BUCKLEY, Director of Milk Supplies, Ministry of Food, and of Lord ELVEDEN, and Lord ASTOR. This pioneer work is of the utmost importance to the community, and there is distinct hope of the movement spreading. The members of our profession will appreciate this promise of progress, which they have been insistent in demanding for many long years.

THE King Edward VII. Hospital, Cardiff, which recently appealed for £150,000, has already received subscriptions amounting to £110,000. The full sum wanted will, it is hoped, soon be obtained.

UNIVERSITY OF WALES.—A representative deputation from the University of Wales was recently received by the Prime Minister to consider the recommendations of the Royal Commission. Agreement was arrived at as to the lines of a new charter. Under this local authorities may contribute a penny rate to the University, and the Treasury will make an equal contribution. Further, in the case of any private benefaction the Treasury will contribute pound for pound. The exact position of the school of medicine was determined; it is to remain, as at present, an integral part of the University College of South Wales and Monmouthshire situated at Cardiff. The full development of the school has been awaiting decision on these matters, and is expected now to go forward rapidly.

Annotations.

"Ne quid nimis."

VILLAGE SETTLEMENTS FOR THE TUBERCULOUS.

Dr. Addison stated in the House of Commons last week that, while institutional treatment for insured persons suffering from tuberculosis is already being provided in most areas by the public health authorities, by arrangement with the Insurance Committees, imminent legislation will lay this treatment as an actual duty upon the authorities. This will hardly cover the establishment of village settlements for the treatment of tuberculous ex-soldiers, which was one of the pressing recommendations of the Inter-departmental Committee on Tuberculosis. The deputy chairman of this Committee, Sir C. A. Montague Barlow, M.P., recently headed a deputation to Dr. Addison to lay before him the case for the establishment of such settlements. Sanatorium treatment for tuberculosis, even where accompanied by training in a suitable occupation, has, it was stated, been found inadequate as a means of combating the disease. Many patients returning from a sanatorium to their homes and former occupations are unable permanently to earn a living or maintain their health. The interest both of the patients and of the community, so the argument ran, requires that patients should pass through a three-fold course, first of sanatorium treatment, secondly of training, and thirdly of permanent settlement in suitable surroundings. The suggested village settlement is to be a natural development of the sanatorium and training colony. On completion of his course of treatment and training the ex-Service man should take up his permanent residence in a settlement where, still in close touch with the sanatorium, he could have his family with him and work under conditions enabling him to maintain his health. His earnings would require to be supplemented, but the community would be the gainer in the transaction by the prevention of the spread of infection, and the fact that the tuberculous patient would remain a productive worker. An article, in another part of our present issue, by Mr. P. C. Varrier-Jones and Sir G. Sims Woodhead, both of them members of the deputation, sets out the claim of poultry-farming to consideration as a productive industry for consumptives. Dr. Addison, while assuring the deputation of his goodwill, did not conceal the difficulties which were to be overcome. The success of a village settlement depended, he thought, more upon the personality of the man in charge than upon the material provision made. As regards finance, the provision of ten settlements for not less than 200 patients each, as proposed by the Inter-departmental Committee, would, he considered, cost much more than the estimated sum of £1,000,000. He could not consider the case of the ex-soldier apart from that of the civilian population, which had no pensions to supplement their earnings. Dr. Addison concluded by intimating the selection of Dr. Nathan Raw and Mr. Varrier-Jones, in conjunction with a medical officer of the Ministry, to make local investigations with a view to the choice of site for the projected settlements. The choice may be no easy matter, for in addition to favourable climatic conditions, local industries and local markets will both have to be considered. No site chosen can escape criticism from some point of view.

OUTDOOR MEDICAL OFFICERS OF THE MINISTRY OF HEALTH.

WE call attention again to the proposed appointments on the outdoor staff of the Ministry of Health set out in our advertising columns. They refer to 18 medical officers for England and 3 for Wales. A committee has been set up to consider applications for these appointments and to make recommendations to Dr. Addison. This committee includes medical men of high standing from different parts of the country, one of whom is to be its chairman, with a nominee of the Civil Service Commissioners and two representatives of the Ministry of Health. The personnel of the committee will not be announced until after it has made its recommendations. The decision to make the appointments is the result of prolonged thought and negotiation. It embodies the conception of medical referees set forth in the well-known circular (M.25) of the British Medical Association, and the selected men will represent the referee-consultants for whom provision was made in the summer of 1914, when the scheme was held over on account of the war. These whole-time officers are to have functions which are primarily administrative, but at first their duties may be largely clinical, because they are to take the places as official referees of the consultants who have been acting in this capacity under private arrangements with the Approved Societies. They are to act as expert advisers to the authority responsible for the clinical service, and will probably have supervisory powers in the administration of the service. These officers are already referred to in the new Medical Benefit Regulations as the medical officers to whom reports are to be furnished, and with whom consultations will be arranged on any patient in respect of whom a practitioner seeks special advice. The appointments are of the utmost importance to the medical profession as the first step in the further organisation of the Medical Service. We may regard them as forming a link not only with the local health authorities when these should finally be determined, but with the hospital and specialist services which are to be provided in the near future.

ACUTE CHOLECYSTITIS IN CHILDREN AS A COMPLICATION OF TYPHOID FEVER.

THE constant infection of the gall-bladder at some stage of typhoid fever, and the important rôle of the typhoid bacillus in the production of cholecystitis and gall-stones, have been recognised for some years, but the cases of empyema of the gall-bladder or acute cholecystitis that require surgical treatment or prove fatal are few. In children acute cholecystitis of any kind is rare. In the *Johns Hopkins Hospital Bulletin* for January Mr. M. R. Reid and Mr. J. C. Montgomery have reported the following case:—

A girl, aged 8 years, was admitted on Dec. 20th, 1918. Abdominal symptoms had begun a week before after an illness of eight weeks, marked by fever, delirium, headache, and diarrhœa. On admission she was emaciated and complained of pain in the abdomen and a large abdominal mass. The temperature was 98·8° F. and the pulse 100. The abdomen was distended, especially on the right disc, and the venules in the skin were prominent. A large smooth mass, extending from the ribs to the level of the anterior iliac spine on the right side, could be seen and felt. The temperature varied during three days from 99° and 104°. Various diagnoses were suggested—retroperitoneal sarcoma, sarcoma of the liver, abdominal abscess, appendix abscess. An affection of the gall-bladder was discussed, but thought unlikely on account of the huge size of the mass. On Dec. 23rd an operation was performed. A distended gall-bladder containing almost a litre of pus was found. It was removed, and after convalescence the patient rapidly gained weight. Cultures from the gall-bladder yielded the typhoid bacillus in pure culture. A week after the operation the urine also yielded a culture of the typhoid bacillus. The gall-bladder showed typical acute hæmorrhagic cholecystitis with necrotic areas.

Mr. Reid and Mr. Montgomery have been able to find recorded only 17 other cases of typhoid cholecystitis in children, although their search goes back to 1835. In the 18 cases the patients were children under the age of 15, who either died from, or were operated on for, cholecystitis complicating typhoid fever. In 11 cases acute cholecystitis did not develop until eight months after recovery from the disease; in the others the complication occurred during the illness. Eight of the patients died without operation, and all of these cases were reported before 1893, since when 10 cases have been treated surgically, with one death. The authors insist on the importance of distinguishing between gall-bladder complications of typhoid fever that do and do not require surgical treatment. Slight pain and tenderness in the region of the gall-bladder, with slight spasticity of the rectus, are not very unusual in typhoid fever, and the vast majority of the patients recover. But immediate operation is indicated in acute suppurative cholecystitis, as rupture of the gall-bladder may occur. Cholecystectomy appears to be the best treatment.

PSYCHOLOGY AND REALITY.

IN these days psychology is taking on a new aspect in that the science is, as the more academic followers of it may think, demeaning itself by the recognition of utilitarian purposes, and the conception of its practical side is being extended to embrace problems concerning such varied matters as the influence of fatigue, systems of memory-training, advertising, the investigation of crime, and the laying of bricks. Quite an extensive literature is growing up round the application of psychological methods to industry, and for a long period we, being perhaps lacking in the kindness of heart and simple faith which characterise some psychologists, have watched the developments which are taking place with curiosity as to the stage at which the altruistic tone would disappear. That the working man should lend himself to a scheme of examination into his capacity which might mean his being displaced by somebody who could do his job better, or which might provide a logical basis for paying him less is surely unlikely; but hitherto there has been surprisingly little recognition of this fact in the various treatises which deal with the most profitable ways of running the industrial machine. To the *British Journal of Psychology* for March, 1920, Mrs. S. S. Brierley[1] contributes a paper which presents this aspect of the matter. "The attention of psychologists," we are told, "has recently been drawn to the widespread opposition to the introduction of psychological methods into industry, existing among organised labour." Even among educated workers, as Mrs. Brierley shows, there is opposition to the principles of "scientific management," and whether this opposition is merely selfish, or represents a genuine doubt as to the

[1] The Present Attitude of Employees to Industrial Psychology.

possibility of having "docile, externally controlled workers in industry, who are yet free, intelligent and responsible members of a democracy outside it," the result is much the same. It means that the psychologist will have to take broad views of his subject if he is really to serve his day and generation as he aims at doing; and it means also that the purport of psychological experiment concerning labour factors should always be made clear to the public. It is the unknown that has the terror. The working psychologist could hardly begin better than by studying the valuable paper referred to in this note.

SEX DISPROPORTION AND ITS REMEDY.

THE occurrence of males and females of the human species in almost exactly equal proportions, whether the white, yellow, or black varieties be considered, is a natural phenomenon of considerable significance. The disturbance of this normal ratio by such accidents as warfare and emigration is well recognised by sociologists as a factor of serious importance. The last annual report of the Friends Association for the Promotion of Social Purity, for example, is constrained to admit the influence of war losses, even while it points out that the disproportion will be considerably less in five years' time. There can be no doubt that an excess of women in the population conduces to irregular living, with its attendant diseases amongst those of a low moral standard. Others whose lives are regulated by the ideals taught in Christian countries may be expected to suffer psychically through the inevitable conflict between their sense of right and their unsatisfied sex instinct. Especially is this true, as has been shown by Professor Jung,[1] in a civilised community where other fundamental instincts like that of self-preservation find no outlet for their affective energy. There is, however, another way of looking at this question. In those countries where a diminishing population is a source of grave anxiety to their most patriotic citizens the loss of thousands of potential fathers is a most serious aspect of the post-war sex ratio. Dr. Paul Carnot[2] estimates that this loss will result in the sterility of two million women in France, and supposing that each of these women might have borne three children, he calculates that the State will lose six million citizens in this generation. France, he says, cannot afford such a depletion, and he puts forward certain tentative suggestions for repairing the gap. One suggestion —less radical than others—is that facilities should be offered to foreigners enabling them to assume French nationality when they are married to French citizens. Many soldiers from all parts of the world have claimed French brides in the last few years, but it is doubtful if any large proportion will wish to establish their home on foreign soil, and Dr. Carnot is not satisfied that such a change in French law will suffice. He is prepared to go much farther.

"No convention, moral or social," he says, "seems to us sufficiently rigid to deprive impoverished France of six million births." The real solution must be sought through some method of making motherhood a remunerative career. The State is to replace the absent "head of the family" and to bear all the expenses incidental to the birth and upbringing of a contingent of young subjects. A bonus will be paid on "products of good physical quality."

We remember the horror which was aroused in this country by the unfounded rumour that Russian women had been "nationalised," and we cannot think that Dr. Carnot's scheme will readily commend itself either here or in France. Fatherhood is nearly as essential as motherhood to the growing child, and we had almost rather consent to polygamy than to sociogamy. The real situation seems to be that society must discover some means of maintaining its sex proportion in the natural ratio of one to one. If war cannot be eliminated, then women might be enlisted on the same terms as men; and, in the meantime, while so many children are in need of food, a great increase in the birth-rate will have its drawbacks.

[1] Collected Papers on Analytical Psychology, second edition, p. 370.
[2] Paris Médical, March 20th, 1920, p. 1.

ACUTE SYPHILIS OF THE KIDNEY.

ACCORDING to Dr. H. N. Cole,[1] who writes from the Department of Dermatology and Syphilis of the Western Reserve University, Cleveland, acute syphilis of the kidney is a rare disease, and the diagnosis is not justified until exacting conditions are satisfied, such as those laid down by Fournier. These were: (1) proof of a recent syphilitic infection; (2) appearance of nephritis with syphilis; (3) lack of other sources for nephritis; (4) characteristic features of the nephritis—viz., a rapid onset of the kidney disease, a very high albumin content in the urine, and a tendency to early uræmia. Dr. Cole reports a case in a man, aged 26, which satisfied all these requirements except that the patient showed no signs of uræmia. Salivation occurred after one week of mercurial inunction, and the albuminuria steadily rose, but after an intravenous injection of 0·2 g. arsenobenzol the albuminuria disappeared entirely within two days.

[1] The American Journal of Syphilis, January, 1920.

A NATIONAL INSTITUTE OF INDUSTRIAL PSYCHOLOGY AND PHYSIOLOGY.

IN the current number of *The Times Engineering Supplement* a detailed account is given of the proposed National Institute of Psychology and Physiology applied to Industry and Commerce. Among the names of its supporters we note those of Sir Walter M. Fletcher, Sir R. A. Gregory, Mr. W. B. Hardy, Dr. Leonard Hill, Sir Alfred Keogh, Dr. C. S. Myers, Sir E. Cooper Perry, Professor C. S. Sherrington, and Professor E. H. Starling. The intention of the founders is to establish a National Institute which will investigate the human problems of industry and commerce, occupying a position similar to that held in the domain of physical science by the National Physical Laboratory. It will provide training courses and lectures for those interested in the practical applications of psychology and physiology to the problems of industry and commerce. It will undertake investigations at factories and offices in relation to any special problems—e.g., the conditions necessary to give optimum output, the methods of reducing mental and muscular fatigue, the application of tests by which workers can be selected for the occupations for which they are mentally or physically best fitted, and the conditions which tend to the health, comfort, and welfare generally of the worker. The Institute will not be established for profit, and a close relation will be maintained with the Industrial Fatigue

Research Board, but overlapping of effort is to be avoided. A Scientific Committee is being formed consisting of the principal psychologists and physiologists throughout the country interested in such problems, in order to coördinate research work and, so far as possible, to support it by means of grants. We heartily wish success to so impartial and scientific a body of workers in their efforts to deal with important problems, in which a previous medical training is obviously of enormous value. The secretary of the proposed Institute is Mr. G. H. Miles, D.Sc. Lond., and its present offices are at 1–4, Great Tower-street, London, E.C. 3.

DEGREES IN SPECIAL SURGERY AT THE UNIVERSITY OF LONDON.

THE claims of regional surgery for proper recognition have become insistent. The Council of British Ophthalmologists recently expressed the opinion[1] that ophthalmology should be one of the optional subjects in which a candidate can elect to be examined for the degree of Master of Surgery of a university. In a presidential address[2] delivered at the end of last year before the Section of Otology of the Royal Society of Medicine Mr. H. Tilley regretted that London stood almost alone amongst the universities of the United Kingdom in not requiring from its students some certifiable knowledge of diseases of the ear, throat, and nose, and that it offered no inducement to advanced study by allowing candidates to elect these subjects for examination for the highest degrees. That is now to be changed. The Senate of the University of London has sanctioned two new branches in which students may proceed to the degree of M.S.—namely, ophthalmology (Branch III.) and laryngology, otology, and rhinology (Branch IV.). Candidates for admission to the examination in either of these branches must normally have taken the degrees of Bachelor of Medicine and Bachelor of Surgery at the University of London not less than two years previously, and the usual certificates of study and practice in the subjects of examination and service in approved appointments are to be produced. Certificates are accepted only from those schools approved by the University for the purpose, and hospitals desiring their teaching and appointments to be so approved are invited to apply to the academic registrar (South Kensington, London, S.W. 7), from whom the detailed regulations may be obtained. London has thus put itself in line as regards special diplomas with other teaching centres.

Dr. Dawson Williams, editor of the *British Medical Journal*, has been made Commander in the civil division of the Order of the British Empire in recognition of his valuable services to the Royal Army Medical Corps throughout the war.

[1] THE LANCET, 1919, ii., 1047. [2] THE LANCET, 1919, ii., 1015.

THE WELSH HOSPITAL FUND.—The winding-up of the Welsh Hospital at Netley is to be of benefit to the Welsh National School of Medicine. This hospital was founded and maintained for war purposes by funds raised from Welsh people in Wales and without; during its existence 9763 patients were admitted. The total income amounted to £87,729, and by good management the expenditure for the four and a half years was £78,040. The balance is now to be devoted to establishing and maintaining 18 scholarships of £25 each per annum at the Welsh National School of Medicine, open to "any person who is or has been for seven years prior to the date of election resident in Wales (including Monmouthshire), or a child or grandchild of a person born of parents resident in Wales (including Monmouthshire) at the time of such person's birth."

THE PHYSICAL CENSUS.[1]

II.

IN a previous article the figures were given of certain localised districts, in connexion with Keith's standard. To what extent can these figures be accepted and made the basis for action? Can we, in the first place, safely compare the figures and percentages yielded by different districts and different towns and occupational groups? In other words, can we admit a disparity in the standards adopted by the different medical boards so considerable as to render it impossible to arrive at sound conclusions? To this it must be answered that the findings are based not upon general impressions as to the fitness of the men but upon the results of actual measurements capable of being expressed mathematically (height, weight, age, relationship of girth of chest to height, &c.). And it must be recollected that every endeavour was made to establish uniform procedure both by published instructions, by giving a common training to the heads of the medical boards from all parts of the country, and by periodical conferences regarding moot points. This being the case, the wide divergences found between the statistics of two cities such as Leeds and Sheffield, situated in the area administered by one district commissioner must have an actual basis of fact.

A disturbing influence of greater importance is the variation in the different areas in the number of men engaged in protected occupations who were called out or "combed out" during the last year of the war. Take, for example, the two cities just mentioned. The industries of Leeds are such that in that city there were relatively few men belonging to protected occupations. The natural tendency had been for those who were strong, keen, and physically fit to volunteer in the early years of the war; from which it follows that the men called up in the fourth year represented largely the dregs of a population exhausted by three years of war. The industries of Sheffield, on the other hand, were of the first importance to the nation for the prosecution of the war; they were highly protected. The final combing out therefore elicited the appearance of an undue number of men who were physically fit. No deductions can be drawn regarding the manhood of these two cities without these facts being kept in mind. We cannot neglect noting that the four occupations which stand highest in the report—namely, agriculture, (coal) mining, engineering, and iron and steel-work—were all highly protected. Nevertheless, and making every allowance for these considerations, we cannot satisfy ourselves that all is well.

There is a grave and disturbing factor to which, we think, sufficient attention has not been drawn in the Report. We refer to the relationship between age and physical efficiency. Professor Keith based his indexes upon measurements taken from a select population of undergraduates in the prime of physical life between the ages of 18 and 25, the majority between 18 and 20. Unfortunately, we possess no adequate body of data by which to establish when the average healthy man is at his physical prime, or by which we can plot out the curve of the age-efficiency relationship. But this we know, as the result of practical experience, and notably from the findings of the boards determining admission to the Air Force, that already at the age of 24 there is to be noted in general a decline of physical fitness. The Report, indeed, yields figures indicating that the maximum is at 18, with relatively rapid descent after this age. Thus Liverpool No. 1 Medical Board reports (p. 57):—

Grading of 25,696 Recruits (Nov. 1st, 1917–Oct. 31st, 1918).

Grade I. Men.

Year.	Number passed.	Percentage.	Year.	Number passed.	Percentage.
18	2146	49·5	26–31 ...	747	27·7
18–19 ...	2354	48·9	32–37 ...	617	20·9
20–25 ...	823	35·2	38–42 ...	277	8·9

It is obvious, therefore, that in a population of recruits which in respect to age is mixed, as was that

[1] THE LANCET, March 6th, p. 557, and March 27th, p. 726.

presenting itself for examination in 1917–18, the index of fitness must vary according to the ages of the individuals forming the various groups, and that the inclusion of even a few men aged between 40 and 50 must materially lower the average. The Liverpool district appears to have taken this variable into fullest account, although in other parts of the North-Western District, as at Stockport and Salford, valuable data are given bearing upon this subject, and (pp. 78–82) the West Midland region gives confirmatory graphs showing the progressive decline in Grade I. men from 18 years of age onwards. The decline is even more rapid in agricultural areas, like Hereford and Leamington, than it is in industrial areas, such as Birmingham and Coventry.

But making these admissions, the fact remains that, selecting what from a physical standpoint is evidently the best group, in a painfully large number of districts that group is below par. Thus in Liverpool the 18-year-old group is 49·5; in Birmingham, 36·0; Burslem, 27·0; Dudley, 21·9, compared with the expected 70 of Keith's index, the 75 per cent. and 63 per cent. respectively of those under 18 and between 18 and 21 of the Edinburgh district, the 80·62 per cent. of Scottish miners from 18 to 21 years of age, and 86·18 per cent. Grade I. among young Scottish ironworkers. Even, therefore, at the most favourable life period there is in many districts a deplorable lowering of the efficiency of British manhood, a lowering so great that it is a national need for it to be arrested. What are the main causes can be deduced from a study of the other end of the tables given—namely, of the rejected Grade IV. men. Regarding these, in district after district we encounter the same story—poor physique, tuberculosis, heart disease. Wholly preventable conditions, malnutrition, and the chronic and subacute infections are, in the main, responsible for the sapping of the vitality of British young manhood. Three-fifths of the rejections are due to these causes. And when we inquire further as to the underlying cause it appears evident that the lowest number of Grade I. men and the highest percentage of rejections are associated with overcrowding, back-to-back houses and lack of ventilation, female labour with its concomitant neglect of the growing child, and poor feeding of the population in general. The food is there, but it is not prepared aright, nor is there adequate selection of the necessary constituents. We must add to these the widespread lack of exercise and physical training of the growing child and the youth, for 90 per cent. of our population has no proper recreative exercise.

Attempt has not been made here to do more than explain certain bearings of a report which should be in the hands of every public official however remotely connected with the health of the nation, and also in the possession of every medical man. The significance of the statements, records, and diagrams can only be realised by personal study, but an idea of the valuable work which has been discharged is furnished by the first table in the report. It has been universally quoted, but its message has not been grasped. From this it will be seen that the actual number of medical examinations made amounted to 2,425,184, the figure including re-examinations, so that the same individual may figure several times in the total. This figure, when divided in accordance with the grades, shows that 36 per cent. were placed in Grade I., 64 per cent. of the population of military age failing to attain the full normal standard of health and strength necessary for enduring the physical exertion suitable to age. 22 to 23 per cent., or approximately 1 in 5, were placed in Grade II., and were thus estimated as being capable only of undergoing physical exertion of a limited kind. 31 to 32 per cent., while presenting marked physical disabilities or evidence of past disease unfitting them for the higher grades, were considered useful material in an army made up of every sample of the population, for occupations such as tailoring and bootmaking, as well as clerical assistance, while rather more than 10 per cent. were totally rejected. From the medical point of view the large percentage of men placed in Grade III. is alike the most ominous and the most hopeful; ominous because the figure is a representation of our want of appreciation of the past of many of the problems of public health, but optimistic in that here lies that great class whose physical condition can be bettered by the intelligent labours of a Ministry of Health. The opportunity should be seized while it lies ready to hand, to examine carefully the material which events of recent years have placed within our reach, with the assurance that though we may not possibly achieve the whole truth we can yet find much that will throw an illuminating light on our greatest national asset—the health of the population.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Medical Practice under "The Curfew."

"The Curfew"—that is to say, the prohibition of being abroad between the hours of 12 midnight and 5 in the morning—has now been in force in Dublin and the neighbourhood for some five or six weeks, and it is possible to consider the effect it has had on the conditions of medical practice. It is to be noted that the authorities promised to grant permits to medical practitioners and nurses and other persons having legitimate business abroad during the prohibited hours, and so far I have not heard of any refusal to proper applications. It was anticipated that even with permits it would not be very safe to be out of doors in the small hours. One remembered the days after Easter week in 1916 when—all others being forbidden to go out after dark—it was permitted to doctors and nurses to go about on their lawful occasions. But the inquiry as to the personality of the wayfarer was as likely to follow as to precede a rifle-shot in his direction, and one distinguished clergyman was killed in this way through having mistaken the time by a few minutes. When the present restrictions were imposed a large body of public servants—the telegraph messengers—were so fearful of the dangers of the night that they declined to perform their duties, and the Postmaster-General admitted in the House of Commons that their reluctance was "not unreasonable." As a matter of fact, the authorities here, as far as my information goes, have carried out their duties of interrogating wayfarers with tact and courtesy, and no mishap has yet occurred. It is true that one or two doctors who neglected to provide themselves with permits have had to spend some hours in a police station, but they have only themselves to blame. On the other hand, certain inconveniences to the sick have necessarily resulted. In case of sudden illness, unless a telephone is available—and in the present condition of the telephone service it sometimes takes more than five hours to get a message through—there is no way of summoning a doctor. An observant journalist who walks a mile home each morning tells me that, in sporting phrase, "the chances are even" of being challenged, and anyone found without a permit is certain to be brought to the police station and delayed until full inquiries have been made. Women making their way to maternity hospitals or requiring attendance at their homes are in special difficulty. A messenger may be unable to reach his destination, and in one case at least a woman in labour was turned back when within a stone's throw of the hospital. The sentry, in the stolid performance of his duty, held that "labour" must cease between 12 and 5!

In spite of the disturbed condition in country districts there does not seem to have been much interference with medical practice. In one case some weeks ago, in county Clare, a medical man arriving in his car on the scene where a "battle" had just taken place between a police patrol and an attacking party was fired on by the police under the idea that the car was coming up in support of the enemy. He was wounded in the forearm, but not seriously. On the whole, medical men do not appear to suffer more than other peaceful citizens from the disturbed conditions.

The late Professor Joseph Patrick Pye.

A distinguished teacher and an impressive personality has passed away in Professor Pye, professor of anatomy

and physiology in University College, Galway. His whole life was associated with the College in Galway. He studied medicine there as a student in the "sixties." Having qualified as L.R.C.S. of Edinburgh in 1870 and taken the medical degree of the old Queen's University in 1871, he was, after some work in London and Paris, appointed professor of Materia Medica in Galway in 1873. In 1877, when Professor Cleland, on appointment to Glasgow, resigned the Chair of Anatomy and Physiology in Galway, Pye succeeded him and filled the two chairs for the 43 years up to his death at the age of 71. His many friends often regretted that he attempted the double duty for so long a period, for he was prevented by his full routine of duty from securing wider recognition as a man of science, but in Galway his originality and insight made him a successful and inspiring teacher. He was held in much affection by his students.

Puerperal Fever in Belfast.

An inquiry has been held in the City Hall, Belfast, by a medical inspector of the Local Government Board, requisitioned by reason of the number of notifications of puerperal fever in the months of December, 1919, and January and February, 1920. It appeared that 21 notifications had been received by the public health department. The public health committee asked the Local Government Board to investigate the facts. Four of the cases were, it was stated, in hospital and three dead. The medical officer of health said four cases were attended by one nurse and notification by her was prompt; she had attended other cases in the same period where no disease had supervened, and he was satisfied there had been no neglect. He believed the infection in the four cases went from one to the other, but the nurse would have no knowledge of the existence of the fever. He said the abnormal system of living during and since the war might have affected people's nerves, so that they had not the same resisting powers as formerly. In the fatal cases there was no overcrowding. He believed the nurse with the four cases did everything she could, and was in no way to blame. Evidence was then taken from doctors who had been in attendance on the cases under investigation. One said it was unfair to private practitioners that nurses with doubtful qualifications should go and make examinations and tell the people it was unnecessary to call in a doctor. He was satisfied that lots of cases of puerperal fever could be avoided if the cases were attended properly. Another doctor said the incidence of influenza had, in his opinion, a great deal to do with these cases of puerperal fever; while another—a former house surgeon in the maternity hospital—said his experience for two years in that institution was that the great majority of cases were due to treatment by "handy women." The medical officer of health, on being re-examined, said he knew some midwives were illiterate and got friends to fill up the notification forms. He had one case in mind where the taking of the temperature was guesswork. The town solicitor said that under the present Act midwives were appointed by the Central Midwives Board, Dublin, and that suggestions as to qualifications by the Corporation had been rejected. The lady inspector superintendent of midwives in the Belfast Public Health Department said, with one exception, all the midwives had carried out her instructions. In connexion with handy women certified under the Corporation Act, she had in a number of instances instructed them in the recording of temperatures and pulse, and the taking of the latter was the greater difficulty. The midwives concerned gave evidence, when one said she could not get a doctor to come to a case, and she could not order removal to hospital, as without a doctor's signature the ambulance would not appear. In another case, until the doctor was paid, he would not come. She said that unless they were engaged to attend doctors would not come. Another midwife, who worked among the poor, said doctors, unless paid their fee, would not come. The inspector said the nurse who had the four cases of puerperal fever had exercised scrupulous care. At the conclusion of the evidence the Belfast City town solicitor said the evidence showed that in almost every case there had been laxity in regard to notification of birth (which should be given within 36 hours), and notification of puerperal fever should also be given at once. With reference to the capacity, knowledge, and training of midwives, "it was," he said, "a dismal thing for the country that the law was passed abrogating the Corporation (viz., Belfast) Act of 1911, and opening the door again to a considerable influx of practically untrained women. Fortunately, that door was now closed as the two years since the Act of 1918 had elapsed, and women of that untrained type could not now be admitted." He said that the nurse who attended the four puerperal cases was the only one who had given notification with promptitude.

Ulster Medical Society.

A meeting of this society was held on March 25th in the Medical Institute, Belfast, Mr. Andrew Fullerton, the President, being in the chair, when Dr. N. C. Graham read a paper on a Typhoid Epidemic in a Sanatorium. The epidemic began on August 17th, 1919, in the Forster Green Consumption Hospital, Belfast, and, during its progress, 21 persons (patients, nurses, and maids) were affected. At first no clue to its causation could be found either in water, milk, or carriers. Later a phthisical patient, who was discharged with high temperature as he was thought to be dying, recovered, and it is believed that he may have had typhoid and that others may have been infected. After the epidemic was over a maid was found with typhoid bacilli in her urine, and she may, perhaps, have been the "carrier." Dr. Graham quoted details of a similar outbreak in a tuberculosis sanatorium in America, and in both places, while Widal's reaction was definite, the typhoid symptoms were not marked among those affected. Dr. G. M. Irvine read a paper on Medical Art in Relation to Social Progress.

March 29th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The New Rector of Paris University.

THE death of Vice-Rector Lucien Poincaré has been made the occasion of an administrative innovation, for Professor Appell, ex-Dean of the Faculté des Sciences, has been nominated as his successor. For nearly 80 years the University of Paris was the only one in France without a titular rector at its head. In theory the rector was the Minister of Public Instruction, and the real head of the University held only the official title of vice-rector, as did L. Poincaré, and Gréard and Liard before him. In the documents which he signed he was only called rector by courtesy. This fiction has now only an historical interest, and the Minister has renounced his honorary title in making M. Appell, who is a celebrated mathematician and a member of the Institute, Rector in name as well as deed.

Gratuitous Treatment of War Victims.

The law of March 31st, 1919, now coming into force in France, gives to all ex-soldiers suffering from wounds or disease due to the war the right to receive medical, surgical, and drug treatment for the remainder of their lives at the expense of the State. In this fit of generosity the State has assumed an enormous burden. Gratuities have an irresistible attraction for the public, and there will be a tendency to refer to their military service as the cause of any malady from which soldiers suffered in the course of five years of war. But in France ex-soldiers represent 80 per cent. of the male population between 20 and 50 years of age. Provisions in the law aim at providing guarantees against such abuses as can be easily foreseen. Men, even though invalided and pensioned by an official inquiry, will have to prove that the disease from which they suffer is a direct consequence of the malady or injury which gave rise to invaliding. At the express demand of the medical profession, free choice of doctor and pharmacist is definitely specified, the State paying the professional charges on a tariff to be fixed later by agreement with the medical societies. Since in view

of the state of French public finance the tariff will be modest, it remains to be determined whether the doctors are obliged to accept the care of such patients. Well-known consultants, who at present command large fees, will be threatened with the invasion of their consulting rooms by a populace happy to make use gratuitously of their right to free choice of doctor, a right assured to them by law. It is true that the doctor will have the power to decide which cases should be treated in hospital, but even so he cannot be obliged to accept all the patients who claim his care. If many doctors refuse—which they certainly will do when they see the abuse of the benefits of the law by well-to-do clients—the statutory free choice will become illusory. This difficulty, clear enough to the medical profession, does not seem to have been foreseen by the legal mind. The administrative dispositions will be simple enough. The names of all the men who come into the legal category will be inscribed on a special list at the town-hall of their place of residence. They will receive a card recording the diseases or injuries contracted during military service, with a series of leaves attached, each consisting of two parts, one for the doctor and one for the pharmacist. The doctor to whom the patient applies will have to certify if he is suffering in consequence of the infirmity inscribed on the card. Should he conclude in the affirmative he tears off the sheet, handing to the patient the part reserved for the prescription for him to take to the pharmacist. The doctor keeps another part of the leaf called a "bulletin de visite." At the end of the quarter the doctor and pharmacist send to the prefect of the department the whole of the used leaves which constitute the vouchers for their payment. At the patient's first visit the doctor writes at once to the prefect informing him that the disease is of a nature to secure the benefit of the law. If he considers otherwise he simply refuses the card presented by the patient, which is as much as to say that he has no legal right to care or medicine. The law does not say if the preliminary consultation is to be paid for when the conclusion is negative. It will in any case involve a careful examination on the part of the doctor, and if this examination is to be paid for by the State abuses will arise on the part of less conscientious patients. These are some of the minor difficulties to be foreseen in the application of the law.

The Campaign against School Epidemics.

M. Azoulay recently complained to the Academy of Medicine that measures to ensure school hygiene are rendered difficult or nugatory by timidity and ignorance on the part of municipalities and faulty interpretation of the measures proposed. He proposes the creation at the onset of any epidemic of a class of infected pupils, directed by teachers and district nurses. The first requisite is to remove all powers in regard to health and sanitation from the authority of the local mayors, who may be incompetent and too sensitive to electoral interests.

March 27th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

A Leaflet on Influenza.

THE frequency of attacks of the new "grippe," or influenza, has caused much uneasiness amongst the population of Vienna, not a little promoted by alarming notices in the daily press as to the high rate of mortality and the serious complications, like meningitis and pneumonia. The Vienna Medical Society, as the recognised authority on medical matters in this city, appointed a committee to draw up an instructive leaflet for the general public. The following information has so far been published by the committee: The present wave of the grippe has been prevalent for about six weeks, but neither in size nor in severity does it equal the epidemic of 1918. Hæmorrhagic cases are almost completely absent; the pneumonic complications are mostly very mild. Neuritic troubles, as well as protracted feverish conditions, are often noted, and initial rashes resembling scarlet fever are occasionally seen. The comparatively frequent cases of encephalitis myoclonica, of doubtful prognosis, seem to be traceable to this epidemic. Children under 12 years are subject to the infection, but mostly to a mild degree. Even cases with a severe onset soon improve. Affections of the middle ear are not very frequent, but often affections of the conjunctivæ are noted with marked inflammatory symptoms.

Treatment of Ozæna by Transplantation of the Parotid Duct.

At a recent meeting of the same society, Professor Meyer reported the results of a series of cases of ozæna, treated on the principles of Wittmaack. This method is based on the fact that the symptom most distressing to these patients, the odour, can be palliated by constant washing out of the nose. Wittmaack had the ingenious idea of producing a continuous irrigation of the nose by implanting the parotid duct into the nasal cavity, thus causing the saliva to keep the nasal mucosa moist. This produced a sort of liquefaction of the nasal discharge, with avoidance of crusts and absence of the peculiar odour. The operation is very simple. An opening is made in the canine fossa similar to that for operation on a maxillary empyema—under local anæsthesia—just opposite the duct. The duct is then freed for about half an inch, with sufficient margin of mucous membrane to permit of a flap, and implanted into the maxillary antrum with a few stitches. It quickly resumes its function, and saliva appears in the nose, especially at meals. In one of the cases the profuse flow caused more inconvenience than the ozæna before operation, and this patient had the operation "undone" because of the profuse salivation; the previous condition was easily restored. But the majority of the other five patients greatly benefited. The time that has elapsed since the introduction of the operation is not long enough to say what permanent benefits will be derived from it.

The Vacant Gynæcologic Appointments in Vienna.

By the unexpected death of Professor Ernest Wertheim, chief of the First Women's Clinic in Vienna University, an unusual condition has been brought about. Since the death of Professor Schauta, about one and a half years ago, his clinic had not been in charge of a clinical teacher, but was carried on temporarily by his last assistant. Now Vienna is without clinical teaching in obstetrics and gynæcology. To fill the vacancies is most urgent. Proper professors are hard to find. The sort of man required is a scientist of high standing, and at the same time a good teacher, while he will have to be very modest in his demands, for the Government seem not to have enough funds to offer satisfactory remuneration. It has been planned for some time to unite both clinics in one institute, but to this idea all students are opposed. As present conditions seem to preclude the appointment of an eminent teacher from Germany, probably one of the leading gynæcologists of Vienna, like Halban or Peham, will be asked to accept the office.

Professor Wertheim.

Professor Wertheim's death came as a shock to his numerous friends, and many beyond our frontiers will learn with regret of his passing. His operation for cancer of the uterus had gained him a wide fame. Wertheim was a keen and bold operator, as well as a critical and cautious scientist, whose researches were distinguished by logic and method. He was the first to prove that the gonococcus was responsible for the majority of infections of the female pelvic organs, and to demonstrate its cultivation by adding human serum to the agar medium. His researches on the anatomy and histology of the pelvic organs and their lymphatics made possible the exact removal of cancerous deposit, and students from both hemispheres flocked to his clinic to follow his methods. At the early age of 56 years he fell a victim to the wave of influenza, which rapidly overwhelmed his weakened heart.

Homage to William Osler.

At a recent meeting of the Medical Society of Vienna Professor K. F. Wenckebach delivered a funeral oration on Sir William Osler, whose death roused worldwide

feeling among the medical fraternity. We in Vienna felt his decease the more keenly, as it was due to his active intervention that our hospitals, some six months ago, received a generous gift of remedies and food from England at a time when conditions were alarming. It will be remembered that Professor Wenckebach visited London at that time and was generously received there.

March 11th.

THE INCOME-TAX REPORT.

BY JOHN BURNS, W.S., EDINBURGH.

EVEN in the midst of the press of work which at present affects all the professions, most of us can spare time enough to get a general notion of how our particular cases are likely to be affected by the changes recommended in the matter of income-tax and super-tax by the Royal Commission which has been inquiring into that subject. It may well be, however, that a practising physician or surgeon would have neither the time nor the inclination to plough his way through the voluminous pages of the report in order to find out the parts which have a bearing on his affairs, and indeed it may be possible to present the position in plainer form than individual reading will attain to.

On the bulk of the medical profession the changes recommended will not impose any materially heavier burden; they may, on the contrary, in many cases be advantageous, as figures later suggest. It is convenient to assume that the recommendations will be accepted and receive legislative effect, although that depends on the Chancellor and the House of Commons.

The Assessment Basis.

Instead of an average of three years the basis is to be the ascertained income of the last year earned in practice. There may be hard cases in the act of transition from the one basis to the other. Some provision is to be made to meet such cases. It may take the form of a rigid rule, or it may possibly issue as a discretion to some official body to give relief when the circumstances seem to justify it. In passing it may be said that there is just a little too much savour of bureaucracy about the Commissioners' recommendations. In any case, this transition point is a technical matter which will in many cases require careful watching. The "preceding year," of course, means the last year for which the doctor has, in fact, made up his accounts. Thus, assuming that the new rule operates for the tax year April, 1920, to April, 1921, the assessment for that year would be upon the ascertained professional results for the doctor's year to, say, Dec. 31st, 1919, if that is the date on which he has been in the habit of making up accounts. There is no suggestion that the option of taking either the earnings basis or the cash basis is to be interfered with.

Remuneration from official appointments will continue to be assessed on the basis of its amount in the actual year of assessment, and neither on an average nor on last year's figure. In connexion with such appointments it is important to note that remuneration in kind is to be brought into account at its fair cash value. That is because, though it cannot in fact be turned into cash, it has in most cases a substantial cash value to the receiver; yet up to date it has escaped. The reference is to such matters as free official residences, free board, attendance, &c.

It may also be well to state that, to reach total income, the unearned income (henceforth to be known as "investment income") is brought in at its amount in the year of assessment. There is an exception in the case of interest and dividends (e.g., on war loans) received without deduction of tax, which is taken at last year's figure, and there is no indication of change there. This refers to the doctor's own investment income and also his wife's, for the Commissioners do not accede to the argument that, for income-tax purposes, husband and wife ought to be reckoned as two.

Earned income relief.—At present this relief is given in the form of a lower rate of tax on the earned income, so long as the total income does not exceed £2500. This is now to be entirely changed. There is to be no limit of income which shall exclude the wealthy man from this relief. But the relief itself is not to extend beyond £2000 of earned income, no matter how large the earned income may be. The form of relief is by subtracting one-tenth from the earned income and bringing into the taxation account only the remaining nine-tenths. Thus a professional income of £500 will count as £450, £1000 as £900, £2000 as £1800, £3000 as £2800. The amount that escapes can never exceed £200 of income.

Abatements.—Here we refer to what up to now have been known as the abatements for small incomes, the last being £70 on incomes exceeding £600 but not exceeding £700. All this is to be changed. The relief is now to be known as the "personal" or "marriage" allowances. The amounts are £135 to an unmarried person, including widows and widowers, and £225 to married couples living together. These allowances are given without any limit of income. The wife allowance disappears, for it is merged in the marriage allowance.

Children.—The conditions as to age remain as at present. The amounts are £40 (as at present) for No. 1, and £30 (instead of the present £25) for each other. No limit of income. The allowance is not to be given in respect of any child who has an income as large as the allowance. It is assumed that it will probably be found that, if a first child has an income of £15 an allowance of £25 could be obtained by the father.

Dependent relatives remain as at present, except that the income limit is abolished, and that the allowance may be obtained for a widowed mother, though neither old nor infirm.

Two things may be noted about all the allowances mentioned. There being no limit of income every doctor must be affected by all, or at least by one of them. They operate as actual deductions from income. It is only after they are taken off that what is now to be known as the "taxable income" is ascertained.

Graduation of tax.—This is retained, but in a much less complicated form than at present. Having found the taxable income, it is taxed as follows: (1) the first £225 at one-half of the standard rate of income-tax, and (2) the balance at the standard rate. At present that would mean 3*s.* on £225 and 6*s.* on the balance. Again, this holds no matter how large the total income may be.

Life assurance.—This becomes rather involved. Policies effected since June, 1916, rank for only one-half of the standard rate of tax, which is the present rule. Policies taken out before that date rank for the full standard rate of tax if the income exceeds £2000; for three-fourths of the standard rate if the income exceeds £1000 but does not exceed £2000; and for one-half of the standard rate if the income does not exceed £1000.

Illustrations.

No. 1.—An unmarried man. Professional income on last year's basis £700
No other income. Deduct one-tenth 70
630
Personal allowance 135
Taxable income £495
Taxed at 3*s.* on £225 and at 6*s.* on £270.

No. 2.—A married man with wife and four children counting for the children abatement; also one dependent relative:—
Professional earnings (practice) £3000
Deduct the maximum earned income relief 200
2800
His investment income 500
His wife's ,, ,, ... 500
£3800
Deduct:—
Marriage allowance £225
Children, £40, £30, £30, £30 130
Dependent relative ... ... 25 = 380
Taxable income £3420
Taxed at 3*s.* on £225 and at 6*s.* on £3195. But if he pays premiums of £200 on pre-1916 policies and of £300 on post-1916 policies, he will obtain relief at 6*s.* per £ on the £200 and at 3*s.* per £ on the £300.

Depreciation.—This will now be obtainable as a deduction in respect of a car. But it will be for consideration whether it should be claimed, or whether it may not be better to continue to charge renewals as at present. In either case all repairs, and, of course, the running expenses, are allowable. As between depreciation or renewals either may be obtained, but not both.

Residence.—The present rule is that when the same premises are used as dwelling house and for practice not more than two-thirds of the Schedule A assessment is an allowable expense. It is suggested that there be, in future, power in a proper case to allow more than two-thirds. What will be regarded as a special case remains to be seen. There have been some very hard cases in the line of boarding-houses, where the trader and family did not occupy more than a twentieth of the whole. But the doctor's grievance, as put before the Commission, rather was that, if it were not for compelling professional necessity, he would reside in a much less expensive neighbourhood and in a much less pretentious residence. The suggestion, therefore, was that in such a case, even though the professional part of the house might be much *less* than two-thirds, it would be reasonable to allow *more* than that fraction as a professional expense. The point should not be forgotten in the class of case to which it applies.

Professional books.—This is a matter which has been referred to in these columns previously. The practice at present varies. It ought now to be cleared up and pressed in Parliament if necessary. A sufficient reason is that the Commissioners recommend an allowance of £20 to schoolmasters for books, assuming that they spend so much. If a schoolmaster requires £20, would £50 be too much for a doctor?

Partnerships.—Each partner may in future be separately assessed; this is to secure privacy, but there will be a right on the part of the Crown to claim against the partnership if any partner does not pay.

Casual gains.—It is recommended that ordinary Stock Exchange gains should be reckoned as taxable income. This is totally novel. But losses would not be deductions against ordinary income.

Super-tax.—The changes are not very great. It is to begin absolutely at any income over £2000. The rates are somewhat increased. The scale is carried up to £20,000. Bonus shares are to be roped in.

Specimen figures of tax.—The following tables include super-tax where payable. When children are referred to what are meant are such children as count for the children allowance. To save space it is assumed that the income is all earned, but even if not the difference is not very great.

Unmarried.

Income.	Present tax.	Proposed tax.	Income.	Present tax.	Proposed tax.
£	£	£	£	£	£
500	45	61	2000	450	466
700	94	115	3000	962	853
1000	150	196	4000	1362	1278
1500	281	331			

Married Couple without Children.

Income.	Present tax.	Proposed tax.
£	£	£
500	39	34
700	87	88
1000	150	169
1500	281	304
2000	450	439
3000	962	826
4000	1362	1251

Married Couple with Three Children.

Income.	Present tax.	Proposed tax.
£	£	£
500	29	20
700	73	61
1000	144	142
1500	281	277
2000	450	412
3000	962	799
4000	1362	1224

THE LATE MR. H. T. SYLVESTER, V.C.—Mr. Henry Thomas Sylvester, who died recently at Paignton, Devon, took his L.R.C.S. Edin. in 1853, and was for 30 years in the employ of the East India Company as surgeon. It was whilst serving with the Royal Welsh Fusiliers that he won the V.C. for rescuing a brother officer under heavy fire, being also mentioned for "devoted goodness to the wounded under his charge." He was a Knight of the Legion of Honour, and also was awarded the Turkish medal, medal and clasp for Sebastopol, and also the medal with clasp for Lucknow. After his retirement from the army Mr. Sylvester practised in London, retiring later to Paignton.

The Services.

ARMY MEDICAL SERVICE.

Lieut.-Col. J. F. Martin relinquishes the temporary appointment of Deputy Assistant Director-General.

Major and Bt. Lieut.-Col. H. V. Bagshawe to be a Deputy Assistant Director-General.

ROYAL ARMY MEDICAL CORPS.

Capt. E. W. Vaughan to be temporary Major whilst specially employed.

The undermentioned relinquish the acting rank of Major: Capts. O. B. Pratt, J. R. N. Warburton; Temp. Capts. J. Bamforth, G. F. Bird.

Capt. T. J. Kelly resigns his commission.

T. W. Smart to be temporary Lieutenant.

Officers relinquishing their commissions:—Temp. Hon. Lieut.-Col. W. R. Dawson (retains the honorary rank of Lieutenant-Colonel); Temp Majors (retaining the rank of Major) C. V. Mackay, H. D. Macphail; Temp. Capt. A. J. Blake (granted the rank of Lieutenant-Colonel); Temp. Capt. (acting Major) N. Dunn (granted the rank of Major); Temp. Capts. (retaining the rank of Captain) J. M. Morris, W. G. Riley, J. P. Crawford, P. L. Hope, F. D. Johnson, J. N. G. W. McMorris, E. Hesterlow, W. J. Lascelles, F. W. Watkyn-Thomas.

SPECIAL RESERVE OF OFFICERS.

Capt. J. E. E. de Robillard resigns his commission.

TERRITORIAL FORCE.

Capt. (acting Major) A. C. Watkin relinquishes the acting rank of Major on ceasing to be employed.

Medical Branch.—The undermentioned are transferred to the unemployed list: Capt. (acting Major) H. Gardiner Hill, Capt. (acting Lieut.-Col.) W. Darling.

VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING THE YEAR 1919.

IN the accompanying table statistics of sickness and mortality in the City of London and in each of the metropolitan boroughs are summarised for the 53 weeks of the year 1919. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to a rate of 5·9 per 1000 of the population, estimated at 4,358,309 persons; in the three preceding years the rates were 5·1, 4·2, and 4·4 per 1000 respectively. Among the various boroughs the rates last year ranged from 2·9 in Hampstead, 3·0 in the City of London, 3·7 in the City of Westminster, 4·0 in Hammersmith, and 4·1 in Kensington, to 6·9 in Hackney, 7·8 in Deptford, 8·4 in Greenwich, 8·5 in Southwark, 8·9 in Stepney, and 10·1 in Bethnal Green. Twenty-six cases of small-pox were notified last year, against 11, 1, 0, and 35 in the four preceding years; of these, 10 belonged to St. Pancras, 4 to Woolwich, 3 to Battersea, 2 to Islington, and 2 to the Port of London. The prevalence of scarlet fever showed a considerable increase last year; 12,931 cases were notified, against 6110 and 6811 in the two preceding years. Among the metropolitan boroughs the greatest proportional prevalence of this disease was recorded in Stepney, Southwark, Lambeth, Deptford, Greenwich, and Lewisham. The Metropolitan Asylums Hospitals contained 2841 scarlet fever patients at the end of last year, against 1246 and 1087 at the end of the two preceding years; 11,750 new cases were admitted during the year, against 6056 and 6676 in the two preceding years. Diphtheria was somewhat more prevalent than in the preceding year; 9479 cases were notified, against 8300 and 8174 in the two preceding years. This disease was proportionally most prevalent in Hackney, Bethnal Green, Stepney, Southwark, Greenwich, and Woolwich. The number of diphtheria patients remaining under treatment at the end of last year in the Metropolitan Asylums Hospitals was 1845, against 1656 and 1089 at the end of the two preceding years; the number of new cases admitted during the year was 9053, against 8554 and 8256 in the two preceding years. The prevalence of enteric fever was slightly less than in the preceding year, but was considerably below other recent years, 344 cases being notified, against 779, 647, 463, 452, and 358 in the five preceding years. The greatest proportional prevalence of this disease was recorded in Kensington, Chelsea, Stepney, Poplar, Greenwich, and Woolwich. The number of enteric fever patients admitted into the Metropolitan Asylums Hospitals during the year was 215, against 470, 446, 324, 271, and 242 in the five preceding years; 25 cases

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING THE YEAR 1919.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1919.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.								Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,358,309	25	12,931	9479	1	344	6	313	2829	197	93	26,219	5·9	5	359	145	777	220	59	1372	2937	0·7	59,255	13·4
West Districts:																								
Paddington	143,938	—	261	259	—	10	—	15	77	7	5	634	4·3	—	11	4	17	3	—	52	87	0·6	1896	13·0
Kensington	157,886	—	261	274	—	19	—	12	75	7	2	650	4·1	—	14	2	17	4	—	82	119	0·7	2389	14·9
Hammersmith ...	130,981	1	186	237	—	9	—	6	78	6	6	529	4·0	—	9	2	21	9	1	65	107	0·8	1674	12·6
Fulham	152,543	—	369	335	—	6	1	35	74	9	2	831	5·4	—	13	5	31	4	2	42	97	0·6	1871	12·1
Chelsea	60,573	—	156	76	—	8	—	3	19	3	3	268	4·4	—	8	4	8	4	—	13	37	0·6	897	14·6
CityofWestminst'r	127,533	—	248	136	—	12	—	4	76	4	1	481	3·7	—	6	3	15	2	2	23	51	0·4	1808	13·9
North Districts:																								
St. Marylebone ...	97,953	—	198	156	—	4	—	6	57	3	5	429	4·3	—	18	3	10	2	2	30	65	0·7	1517	15·2
Hampstead	88,012	—	126	87	—	8	—	2	36	1	3	263	2·9	—	5	2	7	—	—	17	31	0·3	1004	11·2
St. Pancras	219,434	10	587	354	—	9	—	12	145	10	5	1132	5·1	1	15	5	23	7	2	53	106	0·5	2944	13·2
Islington	323,034	2	1084	654	—	16	1	29	212	16	3	2017	6·1	1	13	12	50	18	3	86	183	0·6	4619	14·1
Stoke Newington...	50,954	—	130	118	—	2	—	3	41	2	—	296	5·7	—	2	2	14	4	—	9	31	0·6	657	12·7
Hackney	216,736	—	653	700	—	23	2	17	111	6	6	1518	6·9	—	6	8	91	19	3	66	193	0·9	2860	13·0
Central Districts:																								
Holborn	38,156	—	56	88	—	2	1	—	25	2	—	174	4·5	—	2	—	6	—	1	5	14	0·4	630	16·2
Finsbury...	75,291	—	264	143	—	6	—	6	50	5	1	475	6·2	—	9	—	9	1	—	30	49	0·6	1165	15·2
City of London ...	13,893	—	15	23	—	1	—	—	2	—	1	42	3·0	—	—	—	2	1	—	1	4	0·3	198	14·0
East Districts:																								
Shoreditch	98,134	—	296	260	—	8	—	3	82	4	—	653	6·5	—	14	2	21	2	3	56	98	1·0	1562	15·7
Bethnal Green ...	110,085	1	390	552	1	4	—	9	163	3	2	1125	10·1	—	12	3	56	8	1	69	149	1·3	1550	13·9
Stepney	232,506	1	1023	796	—	33	1	13	219	12	1	2098	8·9	1	15	9	45	17	6	112	205	0·9	3403	14·4
Poplar	153,644	1	369	323	—	24	—	17	130	16	6	886	5·7	—	9	4	34	26	6	65	144	0·9	2246	14·4
South Districts:																								
Southwark	179,971	—	793	504	—	12	—	19	208	6	2	1550	8·5	—	19	4	42	10	3	92	170	0·9	2728	14·9
Bermondsey	124,239	—	399	283	—	8	—	3	84	4	—	781	6·2	—	23	5	21	5	3	52	109	0·9	1729	13·7
Lambeth...	282,322	1	1033	544	—	16	—	17	190	10	7	1818	6·3	—	26	16	62	12	4	89	209	0·7	4194	14·6
Battersea	159,316	3	495	244	—	11	—	11	95	13	6	878	5·4	—	18	3	20	6	3	31	81	0·5	2063	12·7
Wandsworth... ...	333,693	—	906	535	—	18	—	31	147	13	9	1659	4·9	—	18	7	41	14	2	45	127	0·4	3783	11·2
Camberwell	273,802	—	725	511	—	10	—	14	151	6	8	1425	5·1	—	31	12	35	15	3	94	190	0·7	3441	12·4
Deptford...	111,205	—	521	263	—	8	—	8	72	2	4	878	7·8	—	21	9	16	1	2	32	81	0·7	1447	12·8
Greenwich	98,484	—	483	276	—	20	—	5	51	9	1	845	8·4	—	12	7	16	10	2	26	73	0·7	1354	13·5
Lewisham	167,754	—	657	374	—	4	—	6	91	12	3	1147	6·7	—	3	9	20	5	—	16	53	0·3	1943	11·4
Woolwich	136,237	4	239	374	—	27	—	7	68	6	1	726	5·2	2	7	3	27	11	5	19	74	0·5	1683	12·2
Port of London ...	—	2	2	1	—	6	—	—	—	—	—	11	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

remained under treatment at the end of the year, against 68, 50, 37, 32, and 23 at the end of the five preceding years. The greatest proportional prevalence of erysipelas occurred in Stoke Newington, Shoreditch, Bethnal Green, Stepney, Poplar, and Southwark. The 313 cases of puerperal fever notified during the year included 35 in Fulham, 31 in Wandsworth, 29 in Islington, 19 in Southwark, and 17 each in Hackney, Poplar, and Lambeth; in the two preceding years the notified cases of this disease numbered 199 and 158. The 197 cases of cerebro-spinal meningitis included 16 in Islington, 16 in Poplar, 13 in Battersea, 13 in Wandsworth, 12 in Stepney, and 12 in Lewisham; while of the 93 cases of poliomyelitis 9 belonged to Wandsworth, 8 to Camberwell, 7 to Lambeth, and 6 each to Hammersmith, Hackney, Poplar, and Battersea.

The mortality figures in the table relate to deaths of civilians actually belonging to the various metropolitan boroughs, and are obtained by distributing the deaths in institutions among the boroughs in which the deceased persons had previously resided. During the 53 weeks ended Jan. 3rd last the deaths of 59,255 London residents were registered, equal to a death-rate of 13·4 per 1000; in the three preceding years the rates had been 14·3, 14·7, and 18·6 per 1000. The lowest death-rates last year were 11·2 in Hampstead, 11·2 in Wandsworth, 11·4 in Lewisham, 12·1 in Fulham, 12·2 in Woolwich, and 12·4 in Camberwell; the highest rates were 14·9 in Kensington, 14·9 in Southwark, 15·2 in St. Marylebone, 15·2 in Finsbury, 15·7 in Shoreditch, and 16·2 in Holborn. The deaths from all causes included 2937 which were referred to the principal infectious diseases; of these 5 resulted from small-pox, 359 from measles, 145 from scarlet fever, 777 from diphtheria, 220 from whooping-cough, 59 from enteric fever, and 1372 from diarrhœa and enteritis among children under 2 years of age. The death-rates from these diseases in the aggregate ranged from 0·3 in Hampstead, in the City of London, and in Lewisham, 0·4 in the City of Westminster, in Holborn, and in Wandsworth, to 0·9 in Hackney, in Stepney, in Poplar, in Southwark, and in Bermondsey, 1·0 in Shoreditch, and 1·3 in Bethnal Green. Of the 5 deaths from small-pox 2 belonged to Woolwich, and 1 each to St. Pancras, Islington, and Stepney. The 359 fatal cases of measles were less than a quarter of the average number in the five preceding years; this disease was proportionally most fatal in Chelsea, St. Marylebone, Finsbury, Shoreditch, Bermondsey, Deptford, and Greenwich. The 145 deaths from scarlet fever were 57 below the average number; the greatest proportional mortality from this disease was recorded in Chelsea, Lambeth, Deptford, Greenwich, and Lewisham. The 777 fatal cases of diphtheria were 113 in excess of the average number; this disease showed the greatest proportional fatality in Stoke Newington, Hackney, Bethnal Green, Poplar, Southwark, and Lambeth. The 220 deaths from whooping-cough were about one-fifth of the average number; the highest rates from this disease were recorded in Stoke Newington, Hackney, Poplar, Greenwich, and Woolwich. The 59 deaths from enteric fever were 45 fewer than the average number, and included 6 in Stepney, 6 in Poplar, 5 in Woolwich, and 4 in Lambeth. The 1372 deaths from infantile diarrhœa and enteritis were 612 below the average; the mortality from this disease was greatest in Kensington, Hammersmith, Shoreditch, Bethnal Green, Stepney, and Southwark. In conclusion, it may be stated that the aggregate mortality in London last year from these principal infectious diseases was 48 per cent. below the average.

SCOTTISH VITAL STATISTICS FOR 1919.

The figures for 1919—to which reference is made in a preface to those for the last quarter of that year—show a rising birth-rate, an unusually high marriage-rate, and a normal death-rate. Births numbered 106,263, being some 7700 more than the previous year. Marriages numbered 44,126, the highest registered in any year since the institution of national registration. The previous maximum was 36,233 in 1915. Deaths numbered 75,141, which is 404 more than the mean of the preceding five years, but 3231 less than those for 1918. The birth-rate for the year was 21·7, the marriage-rate 9·0, and the death-rate 15·4 per 1000. The infantile mortality was 101·6. Deaths from phthisis were remarkably low, only 88 per 100,000, the lowest yet recorded. Those from all forms of tuberculous disease showed also marked reduction—129 per 100,000—also the lowest on record. The deaths from cancer show an increase, and now outnumber those from phthisis by approximately 32 per cent. The death-rate from the principal epidemic diseases amounted to 0·92 per 1000.

For the last quarter the birth-rate was as high as 27·9 per 1000, the marriages had increased to 9·2, and the deaths had fallen to 13·1. The infantile mortality was only 74, and deaths from epidemic diseases 0·8 per 1000.

Correspondence.

"Audi alteram partem."

MEDICAL LITERATURE FOR VIENNA.

To the Editor of THE LANCET.

SIR,—We have received from Professor Wenckebach sad news concerning the state of Vienna and Austria. Professor Wenckebach, although he accepted the call to Vienna but a short time before the war, has felt it his duty to abide with the suffering people who honoured him in the days of their prosperity. On the general misery of Austria in material needs it is not our purpose to dwell—it is but too well known; the Professor's appeal is for the intellectual needs of a people whose souls are starving. In their penury he says that not a farthing can be had for books or journals, home or foreign, so that for the last three or four years neither teachers nor students have been able to learn what is going on in academical circles. His direct appeal to Great Britain is for recent medical and scientific literature, for which students in all faculties are athirst. He describes the zest with which a group of students will pounce upon any fragment of a journal which may drift into their bare libraries.

May we, then, beg your readers not to throw away journals, books, or papers, and perhaps, furthermore, to make some little sacrifice to spare such literature for the Vienna Medical School? Professor Starling was to have joined us in this appeal, but left for Bombay before his signature was secured. Packets for Professor Wenckebach may be sent to Messrs. Schenker and Co., of 93, Bishopsgate, London, E.C., who have kindly undertaken to forward them in bulk to his care. Any small donations towards transport would be thankfully received by the firm.

We are, Sir, yours faithfully,

CLIFFORD ALLBUTT.
J. MACKENZIE.

Cambridge, March 22nd, 1920.

LIFE ASSURANCE AND GLYCOSURIA.

To the Editor of THE LANCET.

SIR,—In a very valuable paper in your issue of March 27th Dr. R. T. Williamson states that he considers that in cases of glycosuria it is in the interest of the proposer that he should be informed why he has been rejected; and, further, that this should be done by the medical examiner. He calls attention to the rule of many insurance companies that no information as to the medical examination should be given by the medical officer to the proposer.

This rule is very wisely adopted and insisted upon by insurance companies. It is, on the other hand, frequently broken, often to the disadvantage of the company and the great annoyance of the management, both at the head office and at branches, as well as to the proposer himself. Difficult and often acrimonious correspondence may result. In the case of the occasional examiner local difficulties are easily created between the patient and his own medical attendant, or between the medical attendant and the medical examiner.

The proper course for a proposer to adopt when he is declined or postponed for life assurance is to consult his own medical attendant, and it is for the latter to make inquiries from the medical officer of the company should he fail to discover the reason for the declension or postponement of his patient's life. I have never known the refusal of permission to give the information in this way.

Very frequently the request for another examination of the urine is sufficient to induce the proposer to see his medical attendant. It is for the insurance examiner at the second interview to go into the question of whether diet or treatment have been adopted if the result of the tests should now prove satisfactory.

I am, Sir, yours faithfully,

THOMAS D. LISTER,
President, Assurance Medical Society.

Harley-street, W., March 27th, 1920.

ANÆSTHETISTS' FEES.

To the Editor of THE LANCET.

SIR,—Following on the letters in your columns from Mr. Bellamy Gardner and Mr. J. H. Chaldecott an informal meeting was held at Mr. Gardner's house of a number of representative anæsthetists to consider the question of their fees. The grievances of anæsthetists were freely discussed. Some of these are unavoidable, but others, being avoidable, ought to be removed. Of the unavoidable the chief is that an anæsthetist has to accept a case at the time and place offered or refuse it owing to previous engagements. Thus he has to refuse a considerable percentage of the work offered to him. How many other specialists are in a similar position?

The avoidable grievances are more numerous. In the first place there is no definite scale of fees that is recognised by surgeons, general practitioners, and the public. A good general working agreement in pre-war days was 10 per cent. of the surgeon's fee, with a minimum of 3 guineas. This very moderate scale was often not reached, and it is being felt now by anæsthetists that revision (in an upward direction, of course) is called for at the present time. This 10 per cent. basis is manifestly inadequate in cases such as nose, throat, and mouth operations, where exceptional skill and experience are required and exceptional risks are involved. Again, an abdominal operation is supposed to command the statutory fee of 100 guineas. In many cases, however, the surgeon agrees to reduce his fee to, say, 70 or 50 guineas, and it is at least an arguable point whether the anæsthetist, whose fees are on a much lower scale, should be expected to accept a strictly proportionate reduction.

But the main grievance of the anæsthetist is that in too many cases he is regarded as an anonymous nuisance, he is not consulted about his fee, he does not know whether he is expected to look to the surgeon, the general practitioner, or the patient for his remuneration, and falling between three stools he is either not paid at all or receives some months later a more or less adequate fee which ought to have been paid at the time of operation.

I am, Sir, yours faithfully,

LLEWELYN POWELL.

Duke-street Mansions, Grosvenor-square, W., March 29th, 1920.

PARAPHRENIA.

To the Editor of THE LANCET.

SIR,—In your issue of March 27th Dr. W. H. B. Stoddart states that chronic hallucinatory psychosis as described by me in a paper read at a recent meeting of the Medico-Psychological Association is identical with the paraphrenia of Kraepelin. It is not easy to go fully into the differential diagnosis within the limits of a letter. It may, however, be pointed out that in chronic hallucinatory psychosis the patient is the subject of hallucinations for a long period, in some cases even for many years, before delusions develop. In the second stage delusions are formed which are the logical result or explanation of the hallucinations. So far as my experience goes there are these two stages only. In paraphrenia there are at least three stages. The first is the period of "false interpretation" in which the patient has vague delusions of persecution. "The second stage occurs *some years later*, and is characterised by the development of hallucinations of hearing." The quotation is from Dr. Stoddart's book; the italics are mine. In the third stage delusions of grandeur develop.

In my paper I pointed out the similarity of chronic hallucinatory psychosis and chronic hallucinatory insanity of alcoholic origin. Dr. Stoddart in his book gives the differential diagnosis of this latter disease from paraphrenia in the following words: "In this disorder hallucinations occur in the earlier stages and appear to be the foundation of the delusions, whereas in paraphrenia hallucinations appear late in the course of the disease as a kind of crystallisation of the delusions." This sentence summarises the position excellently as regards chronic hallucinatory psychosis

and paraphrenia. With regard to melancholia and dementia præcox I pointed out how unsatisfactory it was that many clinicians put the cases I had in mind in these groups, and I gave in detail the differential diagnosis.

I quite agree that psycho-analysis would be most harmful in patients suffering from well-marked delusions of persecution or grandeur described by Kraepelin as cases of paraphrenia. On the other hand, in the first stage of chronic hallucinatory psychosis the sole symptom is the presence of hallucinations. These, in my belief, develop owing to mental conflict, and repression; and then it is that psycho-analysis is likely to be beneficial. As Dr. Stoddart was unavoidably prevented from hearing the paper read, he is no doubt relying on the report of the meeting in THE LANCET of March 20th. This, of course, is very condensed. The paper will appear in full in the next number of the *Journal of Mental Science*, and if, after studying the clinical details of those patients who are given as examples, Dr. Stoddart is still of the opinion that they are cases of paraphrenia I hope he will renew his attack. After all, what is paraphrenia? It is only Magnan's "*délire chronique*" served up in a new form. Kraepelin admits as much with regard to paraphrenia systematica.

I am, Sir, yours faithfully,

City of London Mental Hospital, near Dartford, Kent, March 27th, 1920. R. H. STEEN.

TUBERCULOSIS AND PENSIONS.

To the Editor of THE LANCET.

SIR,—The note in your last issue on the Diagnosis of Tuberculosis in Recruits and Pensioners by Dr. John Guy is timely. On looking through my records it is surprising to see how many men are getting expert at recounting symptoms which they think will lead to a diagnosis of tuberculosis, and which observation in a sanatorium entirely fails to confirm. Perhaps the most difficult are those who tell a history of hæmoptysis, though many give themselves away by their extravagant statements as to the amount and the circumstances.

To show how many are the cases of deliberate or subconscious malingering I have gone into my records here for the last six months, and find that the figures are sufficiently remarkable to bring before your notice. The cases are sent in by the county tuberculosis officers whenever the history or symptoms appear to indicate that careful clinical investigation may be required to settle the diagnosis. The concentration methods of examining the sputum in use at the county laboratories (under the control of Dr. S. Barwise, county medical officer of health) settle the diagnosis of some of them quite clearly by the finding of tubercle bacilli, even when in very small numbers. The "negative" cases are given exercise tests with rectal temperature controls, an X ray screen and plate examination is made, and in some cases an attempt is made to induce focal reactions with tuberculin where there are no contra-indications to such a method. The period of observation takes about ten days, and includes careful clinical examinations at different times of the chest.

What have been the results? Out of 103 cases in six months, 25 were "flagrant" cases of tuberculosis with positive sputum; 52 were very early and "closed" cases; and 26 were "non-tuberculous." That is, *one-quarter* of all the admissions of ex-soldiers were negative to all tests, or, as I prefer to put it, not suffering from active or recent tuberculosis. Now, on looking into the statements of these men with regard to their symptoms, one is struck by the fact that they seldom claim less and often more than the "sputum positive" case, shortness of breath and loss of voice being the most frequent symptoms. If kept in bed under close observation many of these cases get tired of the pretence and freely admit they are now quite well—within a week.

At a time when the financial resources of the country are strained to the utmost it is essential that money should not be frittered away in pensions to the undeserving, and, while it is conceded that the ex-soldier should have the benefit of any doubt that may exist, it is very important that all reasonable means to clear up such doubts should be taken. A few pounds spent on a proper diagnosis may save many hundred pounds in pension money, and many a man's self-respect may be restored by being firmly told that he has no claim to a pension. Hasty diagnosis on the lines of least resistance is more common and more expensive to the country in cases of suspected tuberculosis than in any other condition.

I am, Sir, yours faithfully,

W. C. FOWLER.

Derbyshire Sanatorium, Chesterfield, March 29th, 1920.

THE DRINKING OF METHYLATED SPIRITS.

To the Editor of THE LANCET.

SIR,—Partly on account of the increased cost of whisky, brandy, &c., and partly because the purchase of these spirits is restricted to a few hours during the day, the drinking of methylated spirits appears to be greatly on the increase. I have had under treatment recently several patients who have taken to methylated spirits when nothing better was obtainable, and there have been references to the practice in the daily press.

A simple method of making this beverage unpopular is to add tartar emetic, ½ gr. to each ounce, and to label the mixture "poison." I have for many years had this addition made to the methylated spirit used for household purposes in an institution with which I am connected, and I believe that the "poison" label has been sufficient to deter the inmates from sampling the stuff. The cost of the addition to all the methylated spirit sold to the public would not be heavy, say 1*d.* a gallon, and the cost of other additions such as shellac or naphtha would be saved, though to colour the mixture blue (which I have never done) might be an advantage.

I am, Sir, yours faithfully,

Rickmansworth, March 29th, 1920. F. S. D. HOGG.

UNIVERSITY COLLEGE, LONDON: WAR MEMORIAL TO FALLEN STUDENTS.

To the Editor of THE LANCET.

SIR,—We trust you will give us the hospitality of your columns to call the attention of former students of University College and University College Hospital, London, to the memorial we are endeavouring to raise to college and hospital men who fell in the war. Owing to the many changes that have taken place during and since the war, our address-list is not complete. It will be of great assistance to us if all members of the College who have not already received our appeal will send post-cards with their names and addresses and dates of student years to the honorary secretary. We shall then be very glad to send them full particulars of our war memorial scheme. We hope we may rely on the support of all students, past and present.

We are, Sir, yours faithfully,

GREGORY FOSTER, Chairman.
G. BLACKER, Vice-Chairman.
LAWRENCE SOLOMON, Hon. Secretary.

University College, London, March 25th, 1920.

PAY IN THE INDIAN MEDICAL SERVICE.

To the Editor of THE LANCET.

SIR,—May I place before your readers interested in I.M.S. prospects the following facts showing the relatively deteriorated condition of the I.M.S. both in relation to their fellow military officers, and to the other scientific services in India.

Army Instruction India 321 of 1919 fixes a new scale of consolidated pay for I.M.S. officers, abolishes the station hospital allowances introduced in Indian Army Instruction 1343 of 1918, and continues in force the abolition of all previous allowances enumerated in the latter Indian Army Instruction—viz., additional charge allowances, horse allowances, and plurality of charges.

Indian Army Order No. 86 S fixes a new rate of grade pay for Indian Army regimental officers, but continues

the old rates of staff allowances (vide table below)—viz., company officers,. Rs.100 per mensem), company commander (Rs. 200 per mensem), quartermaster (Rs.150 per mensem), adjutant (Rs.200 per mensem), second in command (Rs.250 per mensem), command (Rs.600–700 per mensem), and depôt command (Rs.400 per mensem). This results in salaries far above the new rates of I.M.S. salaries.

This Indian Army Scale of Salaries of I.A.O.86 S was fixed for one specified reason only—viz., "high cost of living." The I.M.S. new scale of salaries of A.I.I.321 was fixed for one specified reason only—viz., "to attract European candidates of the highest professional qualifications."

It will be observed from the appended table, for example, that the minimal salary of an Indian Army captain of nine years' completed service exceeds the salary of an I.M.S. captain of nine years' completed service, and this in spite of the I.M.S. captain's supposed seniority of six years due to his previous professional training.

Will candidates of the type specified be attracted by salaries below those of fellow military officers six years their juniors whose salaries are fixed to meet "the high cost of living"? The new scale of salaries of the Indian Forests and Public Works Engineers are on the annual incremental system, and are superior to the I.M.S. salaries. Starting with Rs.450 in the former and Rs.550 in the latter service, Rs. 1000 is reached at the tenth and Rs.1500 at the twentieth year of service.

I append a table showing the relative position of the I.M.S. to the Indian Army. The salaries are given in rupees per mensem.

Rank and years of completed service.	I.M.S.	Indian Infantry.*	Indian Cavalry.	Supply and Transport.†
	Consolidated + nil.	Grade + Staff.	Grade + Staff + Horse allowance.	Grade + Staff.
Lieut.	550	475 + 100 or 150 ,, 200 ,, 250 ,,	475 + 100 or 150 ,, 200 ,, 250 ,, + 60	475 + 250 or 300
,, 7 yrs.		550 + 400	550 + 400 + 60	550 +
Captain.	700	700 + 100 or 150 ,, 200 ,,	700 + 100 or 150 ,, 200 ,, + 60	700 + 300 or 400
,, 5 yrs.	750			
,, 7 ,,	800			
,, 9 ,,		750 + 250 ,, 400	750 + 250 ,, 400 + 70	750 +
,, 10 ,,	900			
Major.	1000	900 + 200 or 250 ,, 400 ,,	900 + 200 or 250 ,, 400 ,, + 90	900 + 400 or 500 or 600
,, 15 yrs.	1150			
,, 20 ,,		950 + 600	950 + 700 + 90	950 +
Lieut.-Colonel.	1550	1150 + 600	1150 + 700 + 90	1150 + 800 or 1000

* Vide current Indian Army Orders and Indian Army Gazettes to see the enormous numbers of Captains and Lieutenants holding company command, depôt command, and second in command.

† Vide Indian Army Quarters List to see grades of Lieutenants, Captains, and Majors.

Thus it will be seen that the I.M.S. salaries, although consolidated, like the Forests and P.W.D., lack their steadily progressive scale. Like the Indian Army, the I.M.S. has long intervals without increments, but lacks its staff pay of progressively increasing amounts to make up for the fewness of increments of grade pay. Thus the I.M.S. salaries have the disadvantages of both and the advantages of neither, and are inferior in amount to either, although supposed to attract men older in years and with more costly training! Let it also be remembered that the six years' seniority previously given to I.M.S. officers no longer exists, owing to the Indian Army acceleration of promotion.

I am, Sir, yours faithfully,

March 4th, 1920. I.M.S.

TAUNTON HOSPITAL.—As a portion of the memorial to the late Lord St. Audries the West Somerset Agricultural Memorial Fund Committee has raised £500 for the endowment of a bed in the Taunton and Somerset Hospital.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 24TH.

Nurses' Registration Council.

Mr. GRUNDY asked the Minister of Health whether he could give an assurance that in the appointment of the first council under the Nurses Registration Act there would be included representatives directly nominated by bona fide nurses' trade-unions, as distinct from associations presumed to cater for nurses, but directed and controlled by persons other than nurses.—Dr. ADDISON replied: Under the schedule to the Act I am bound to consult, and I have consulted, three organisations specifically named and such other associations or organised bodies of nurses or matrons as ask to be consulted. No organisation is given the right of direct nomination to the General Nursing Council. The invitations in connexion with the membership of the Council will be issued to-morrow.

Deaths from Anæsthetics.

Mr. GILBERT asked the Minister of Health whether his attention had been called to some recent inquests held in London into deaths caused by the use of various anæsthetics; whether he had received any riders passed by the juries in these cases; whether he proposed to make any further inquiry into these cases; and whether he proposed to introduce legislation to provide that anæsthetics should only be administered by properly qualified medical men.—Dr. ADDISON replied: I am in communication with the Home Office, but am not at present in a position to make any statement with regard to the last part of the question.

Health Services in London.

Sir C. COBB asked the Minister of Health whether he had received a report, which was adopted by the London County Council on Dec. 19th, 1919, embodying a scheme for the better organisation of health services in London; whether he was in general agreement with the proposals of the London County Council; and, in order that the County Council might be in a position to develop its proposals in greater detail, whether he was prepared to receive at an early date the deputation suggested by the Council.—Dr. ADDISON replied: I have received the report to which my honourable friend refers, and it is being carefully considered, but as my honourable friend knows, it raises a number of most important and complicated questions, and I think it would be of advantage both to the Council and the Government that these questions should be further examined before I receive the suggested deputation.

Clothing for Tuberculous Patients.

Mr. GWYNNE asked the Pensions Minister whether a decision had yet been reached in regard to the better provision of special clothing and bedding for ex-Service men suffering from tuberculosis; and, if so, what were the concessions.—Sir J. CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied: Under the present regulations of the Ministry underclothing and great coats are provided on loan for the use of men in sanatorium and other institutions, and great coats for the use, where necessary, of men under out-patient treatment at home. Extra blankets are also provided by local committees for men suffering from tuberculosis who are under open-air treatment at home, and for whom such extra blankets are certified to be necessary. The arrangements under which these articles are provided appear to be working satisfactorily, but if my honourable friend has information to the contrary my right honourable friend will be glad to consider it.

Indian Medical Practitioners in British East Africa.

Mr. WATERSON asked the Under Secretary of State for the Colonies whether Indian medical practitioners in British East Africa were forbidden to carry on independent medical practice; and, if so, on what grounds.—Lieutenant-Colonel AMERY replied: The question of medical practice in the East Africa Protectorate is governed by the Medical Practitioners' and Dentists' Ordinance, 1910. Under that Ordinance the holder of any British Indian degree, diploma, or licence entitling him to registration in the United Kingdom is entitled to be registered as a medical practitioner in the East Africa Protectorate. Under the same Ordinance the practice of systems of therapeutics according to native Indian or other Asiatic method is permitted for persons recognised by the community to which they belong to be duly trained in such practice, subject to provisos that such systems may only be practised amongst the community to which the practitioner belongs, and that no Act under any such system on the part of such persons as is dangerous to life shall be permitted.

National Health Insurance Bill Expenses.

The money resolution in connexion with the new National Health Insurance Bill, which had passed through Committee, was reported to the House and agreed to.

THURSDAY, MARCH 25TH.

Sanatoriums for Uncertifiable Mental Cases.

Sir A. SHIRLEY BENN asked the Pensions Minister if he would state how many sanatoriums were provided by his Department for the benefit of uncertifiable border-line cases of loss of mental balance occurring among ex-soldiers as distinguished from neurasthenics of a pseudo-paralytic type, where they were situated, what accommodation they furnished, and were facilities afforded for interesting occupations for the purpose of promoting an early return to the conditions of industrial life.—Sir J. CRAIG replied: Eighteen institutions, providing 2046 beds, have been set up by the Ministry to deal with the cases described. They are situated at Edinburgh, Shotley Bridge, Leeds (2), Altrincham, Woolton, Stockport, Leicester, Maidenhead, Bath, Exeter, Orpington, Tooting, Denmark Hill, Roehampton, Chepstow, Craigend, and Leopardstown. Further institutions are in course of preparation. Occupational training has been provided at the majority of these homes, and at the remainder is being instituted as rapidly as possible. Accommodation in the treatment and training centres will also be available for the convalescent cases which still require treatment and training. There are, in addition, clinics at Lancaster Gate, Manchester, and elsewhere where out-patient treatment is given for the milder type of neurasthenic, such as the pseudo-paralytic type.

Mr. WATERSON asked the Minister of Health if it was his intention to start sanatoriums for early uncertifiable mental cases which did not at first involve detention; and, if so, could he state the approximate cost of such outlay.—Dr. ADDISON replied: I am afraid I cannot add anything to the answer which I gave on March 12th, in which I explained that any such scheme would require legislation, and I am not in a position to say when such legislation will be introduced.

Sanatorium Benefit under the Insurance Act.

Lieutenant-Commander KENWORTHY asked the Minister of Health if he would state to whom and in what manner it was proposed to transfer the duty of providing sanatorium benefit to insured persons, hitherto performed by the Insurance Committees, under the provisions of the new National Health Insurance Bill.—Dr. ADDISON replied: Institutional treatment for insured persons suffering from tuberculosis is already being provided in most areas by the public health authorities under agreements made with the Insurance Committees, and it is proposed to transfer the duty of providing such treatment to appropriate public health authorities. I am hoping to introduce legislation for this purpose at an early date. Domiciliary treatment for insured persons suffering from tuberculosis will be provided by Insurance Committees under Clause 4 (3) of the National Health Insurance Bill as part of medical benefit.

MONDAY, MARCH 29TH.

Medical Benefit Regulations for Scotland.

Major HENDERSON asked the Secretary for Scotland whether he was aware that English medical panel practitioners had already received copies of the Medical Benefit Regulations for 1920, whereas Scottish medical panel practitioners had been unable to obtain the regulations, although they had applied for them; and whether, under these circumstances, he would take steps to have the regulations published and circulated to the medical profession without further delay.—Mr. MUNRO replied: The answer to the first part of the question is in the affirmative. I understand, however, that proofs of the regulations were issued to Panel Committees in Scotland on Jan. 19th. The Scottish Regulations cannot be finally issued until suggestions for amendment made by the doctors have been adjusted in consultation with the Scottish Committee of the British Medical Association. A meeting on the subject takes place to-morrow, after which the regulations will be issued as speedily as possible.

TUESDAY, MARCH 30TH.

Medical Referees and Industrial Fitness.

Mr. DUNCAN GRAHAM asked the Parliamentary Secretary to the Pensions Ministry whether he was aware that discharged soldiers who had been wounded or who had contracted disease during their service in the army, and were consequently unfit to resume their former occupations, were being certified by medical boards in the industrial districts of Scotland as being fit for light employment, which form of employment was being withheld from them either because of the inability or unwillingness of the employers to provide it; was he aware that many of the decisions of the medical boards were opposed to the opinions held by the panel doctors regarding the fitness of the men affected for work; and whether he would agree to set up a tribunal, composed exclusively of Members of the House, whose functions should be to determine the question of whether the views held by the panel doctors or the medical board accurately described the men's condition.—Sir J. CRAIG replied: The honourable Member is presumably referring to medical referees, as medical boards do not certify fitness for work. It is contrary to instructions for a medical referee to certify any man as "fit for light employment," and whenever a case of this kind is brought to notice the attention of the medical referee at fault is drawn to it. My right honourable friend does not think it necessary to set up a tribunal such as is suggested in the last part of the question.

Medical News.

BRITISH EMPIRE HONOURS.—Among the very numerous appointments to the civil division of the Order of the British Empire for services in connexion with the war are the names of four medical men to be Knights-Commanders, namely: Dr. Isaac Bayley Balfour, professor of botany in the University of Edinburgh; Major James William Beeman Hodsdon, F.R.C.S.Edin., member of Medical Advisory Board to the late Ministry of National Service; Lieutenant-Colonel David Wallace, F.R.C.S., Red Cross Commissioner and Military Inspection Officer, Auxiliary Hospitals; and Colonel Arthur L. A. Webb, Director-General of Medical Services at the Ministry of Pensions. Knighthoods have also been given to Professor William Henry Bragg, Quain professor of physics in the University of London; to Mr. Sidney Frederic Harmer, F.R.S., director of the Natural History Museum; and to Mr. Frederick J. Willis, assistant secretary to the Ministry of Health. The names of Commanders and Officers are unavoidably postponed to a later issue.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia of the College was held on March 29th, Sir Norman Moore, the President, being in the chair. After the minutes of the meeting of the Censors' Board and of the previous meeting of the Comitia had been read, the President delivered the annual address, in which he reviewed the honours conferred upon the Fellows, Members, and licentiates during the last 12 months. He also announced that the College list contained the names of 357 Fellows, 506 Members, 13,800 licentiates, 1 extra-licentiate, 863 diplomates in public health, and 18 tropical diplomates. Eloquent obituary notices were then given of the 11 Fellows who have died during the year—viz., Dr. F. J. Smith, Dr. Joseph Wiglesworth, Dr. G. Bernard Brodie, Dr. E. G. Fearnsides, Professor W. S. Greenfield, Dr. C. A. Mercier, Dr. Guthrie Rankin, Sir William Osler, Dr. Laurence Humphry, Sir James Alexander Grant, K.C.M.G., and Dr. Samuel H. West. —The President then vacated the chair, and the election to the office of President for the ensuing year was held, Sir Norman Moore being re-elected. He then gave his faith to the College.—Licences to practise physic were granted to George Cleverdon Hartley, Birmingham University, and to Kathleen Suzanne Vine, Royal Free Hospital.—After returning thanks to the College the President declared the Comitia closed.

UNIVERSITY OF DURHAM: FACULTY OF MEDICINE.—At examinations recently held the following candidates were successful:—

THIRD EXAMINATION FOR DEGREE OF BACHELOR OF MEDICINE.

Materia Medica, Pharmacology, and Pharmacy; Public Health; Medical Jurisprudence; Pathology and Elementary Bacteriology.—Francis Joseph Benjamin, John James Norman Daniels, Dorothy Esther Elliott, Roland Hewitson, Joseph Jackson, Morris Mickler, Lionel Myers (second-class honours), Joan Winifred Nicoll, Robert John Perring, Sydney Terry Pybus, Mary Foster Richardson, Olive Constance Wilson, and Philomena Ryland Whitaker.

UNIVERSITY OF ABERDEEN.—At the graduation ceremony on March 24th the following degrees were conferred:—

DOCTOR OF LAWS (LL.D.).

Sir Jagadis Chandra Bose, C.S.I., C.I.E., Founder and Director, Bose Research Institute, Calcutta (in absentia); Dr. William Bulloch, Professor of Bacteriology, University of London; Sir Robert Jones, K.B.E., C.B., Surgeon in Liverpool, late Major-General, A.M.S., and Inspector of Military Orthopædics; and Dr. David Nicolson, C.B., Lord Chancellor's Visitor in Lunacy since 1896, Medical Adviser of the Home Secretary in Criminal Mental Cases (in absentia).

DOCTOR OF MEDICINE (M.D.).

Alistair Sim Garden, James Leask, and Helen Lillie.

BACHELOR OF MEDICINE (M.B.) AND BACHELOR OF SURGERY (CH.B.).

Dorothy Edith Bryant, Alexander Victor Reid Don, Murray Young Garden* (second-class honours), Charles Albert Hay, Dorothy Mildred Holmes, Alice Mabel Lee Innes, Robert Cran MacLennan, Joseph Mackenzie Stuart, Douglas Mackenzie Thomson, and Ida Elizabeth Wood.

* Passed Final Medical Professional Examination with much distinction.

DIPLOMA IN PUBLIC HEALTH.

Alfred George Brown Duncan, Richard Ramsay Garden, Evan Alexander Mackenzie, Lachlan Martin Victor Mitchell (with credit), and Anne Simpson.

BRITISH MEDICAL ASSOCIATION: SCHOLARSHIPS AND GRANTS IN AID OF SCIENTIFIC RESEARCH.—The Council of the British Medical Association is prepared to receive applications for research scholarships as follows: 1. An Ernest Hart Memorial Scholarship, of the value of £200 per annum, for the study of some subject in the department of State Medicine. 2. Three Research Scholarships, each of the value of £150 per annum, for research into some subject relating to the causation, prevention, or treatment of disease. Each scholarship is tenable for one year, commencing on Oct. 1st, 1920. A scholar may be reappointed for not more than two additional terms.

Grants.—The Council of the British Medical Association is also prepared to receive applications for grants for the assistance of research into the causation, treatment, or prevention of disease. Preference will be given, other things being equal, to members of the medical profession and to applicants who propose as subjects of investigation problems directly related to practical medicine.

The conditions of the award of scholarships and grants are stated in the regulations, a copy of which will be supplied on application to the medical secretary of the Association.

All applications, both for scholarships and for grants for the year 1920-21, must be made not later than Saturday, May 29th, 1920, in the prescribed form, a copy of which will be supplied by the medical secretary on application. Each application should be accompanied by testimonials, including a recommendation from the head of the laboratory, if any, in which the applicant proposes to work, setting out the fitness of the candidate to conduct such work, and the probable value of the work to be undertaken. This is not intended, however, to prevent applications for grants in aid of work which need not be performed in a recognised laboratory. Applications should be made to Dr. Cox, medical secretary of the Association, at 429, Strand, London, W.C. 2.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.—A meeting of the Council was held on March 29th at the Royal Society of Medicine, Lord Sydenham presiding. Lord Gorell (chairman of the Parliamentary Committee), Sir Malcolm Morris, Mr. E. B. Turner, Mrs. Torrey, Mrs. Gotto (general secretary), and Dr. Douglas White (honorary medical secretary) were present, but the general attendance was small. Lord Sydenham referred to the controversy on self-disinfection, and regretted that the efforts which he had made to bring about a round-table conference between the National Council and the Society for the Prevention of Venereal Disease had proved unsuccessful. A section of the public, realising that there was a lack of agreement between these two bodies, might, he feared, be inclined to ignore the activities of both. For himself, he did not believe in the possibility of so organising methods of self-disinfection as to render their adoption of value to the civilian community. The use of prophylactic packets would, he trusted, never be advocated by the Council. Lord Sydenham laid stress on the necessity of securing for sailors the same preventive and curative facilities as are available for landsmen. Speaking of the work of the International Red Cross at Geneva, he informed his audience of the official recognition of the N.C.C.V.D. by that body. In concluding he gave an impressive and sympathetic eulogium on the late Sir Robert Morant. The greater part of the meeting was given up to a discussion on compulsory notification. The importance of the subject was indicated by the chairman's statement that 40 per cent. of patients were believed to discontinue treatment for venereal disease before finishing the course. Strong views were enunciated on both sides. Sir Malcolm Morris, whilst recording his belief that the time was coming when notification would be enforced, thought that much educational and propaganda work remained to be done to enable the public mind to assimilate and approve of the measure. Evidently a majority of those present favoured the introduction of some form of compulsion.

BOOKS, ETC., RECEIVED.

MURRAY, JOHN, London.
An Index of Symptoms. By K. W. Leftwich, M.D. 7th ed. Pp. 595. 15*s.*

PHILLIPS, STANLEY, Brondesbury-road, London. W. M. LEONARD, Boston, U.S.A.
Shell Shock and Other Neuropsychiatric Problems from the War Literature, 1914-1918. By Dr. E. E. Southard and Others. (Case History Series.) Pp. 1004.

ROUTLEDGE, GEORGE, AND SONS, London.
Sleeping for Health. By E. F. Bowers, M.D. Pp. 128. 2*s.* 6*d.*

UNIVERSITY OF LONDON PRESS, London.
Diabetic Dieting and Cookery. By P. J. Cammidge, M.D. Pp. 222. 10*s.* 6*d.*

Appointments.

HOWELL, B. W., F.R.C.S., has been appointed Surgeon to the Royal Surgical Aid Society.

REYNELL, W. R., M.D., M.R.C.P., Physician to Out-patients, West End Hospital for Nervous Diseases.

THORNTON, G. L., M.A. Cantab., M.R.C.P. Lond., M.R.C.S., M.C., Deputy Commissioner for Medical Services.

Vacancies.

For further information refer to the advertisement columns.

Barnsley, Beckett Hospital.—Jun. H.S. £180.
Bath Ear, Nose, and Throat Hospital, Charles-street, Bath.—Hon. Anæsth.
Bermondsey Borough.—Two Temp. Asst. M.O.H's. £600. Also Female Asst. M.O.H. £600.
Birkenhead Borough Hospital.—Sen. and Jun. H.S.'s. £200 and £170.
Birmingham and Midland Ear and Throat Hospital.—Asst. S.
Bradford City Education Committee.—Asst. Sch. M.O. £600.
Brighton, Royal Sussex County Hospital.—H.P. £150.
Burnley, Victoria Hospital—H.S. £250.
Cancer Hospital, Fulham-road, S.W.—Hon. Dent. S.
Cardiff, University College of South Wales and Monmouthshire.—Professor of Physiology. £900.
Carshalton, Surrey, Queen Mary's Hospital for Children.—Senior Asst. and Junior Asst. M.O.'s. £645 5*s.* and £515 6*s.* respectively.
Derby, Derbyshire Royal Infirmary.—Oph. H.S. £200.
Derbyshire Education Committee.—Sch. Dentist. £450.
Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P and Asst. H.S. £175 and £150 respectively.
Hammersmith Parish.—Dist. M.O. and Public Vaccinator. £21.
Hereford County and City Mental Hospital.—Second Asst. M.O. £350.
Hospital for Consumption and Diseases of the Chest, Brompton.—H.P. 30 guineas.
Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W.—S.
Huddersfield Royal Infirmary.—Asst. H.S. £150.
Infectious Hospitals Service, Metropolitan Asylums Board.—Junior Asst. M.O.'s. £515 6*s.*
Italian Hospital, Queen-square, W.C.—Hon. Asst. Anæsth.
King's College Hospital, Denmark Hill, S.E.—Med. Out-patients' O. and Surg. Out-patients' O. £250.
Larbert, Stirling District Asylum.—Female Third Asst. M.O. £250.
Leeds Public Dispensary.—Res. M.O. £200.
Liverpool City and Port.—Asst. Port M.O. £650.
Liverpool, David Lewis Northern Hospital.—Two H.P.'s and One H.S. £150 each.
Loughborough and District General Hospital and Dispensary.—Res. H.S. £200.
Macclesfield, Cheshire County Asylum, Parkside.—Asst. M.O. £350.
Manchester, Ancoats Hospital.—Res. Surg. O. £200. Also H.S. £100.
Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150.
Manchester Hospital for Consumption and Diseases of the Throat and Chest, Bowdon, Cheshire.—Res. M.O. £350.
Manchester, St. Mary's Hospitals for Women and Children.—Hon. Asst. P.
Manor House Hospital, North End-road, Hampstead, N.W.—H.S. and Asst. Anæsth. £150.
Margate, Princess Mary's Hospital for Children, Cliftonville.—Junior Asst. M.O. £579 14*s.*
Middlesbrough, North Ormesby Hospital.—Asst. H.S. £175.
Ministry of Health, Whitehall, S.W.—M.O.'s. £1000.
Monmouthshire County Council.—Female Asst. M.O. £500.
Mothers Hospital, 153-163, Lower Clapton-road, Hackney, E.—Res. M.O.
National Hospital for Diseases of the Heart, Westmoreland-street, W.—Hon. Asst. P.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Hon. Gynæcologist.
Newark Hospital and Dispensary.—Res. H.S. £200.
Nottingham General Hospital.—Cas. H.S. £150.
Paddington Green Children's Hospital, London, W.—S. and P.'s. Also H.P. and H.S. £150 each.
Plymouth, Borough of.—Asst. Tuberc. O. £500.
Portsmouth County Borough.—Asst. Tuberc. O. £500.
Prince of Wales's General Hospital, Tottenham, N.—H.P. and H.S. £200 each. Also Jun. H.P. and Jun. H.S. £120 each. Also Two Hon. Asst. P.'s.
Queen Mary's Hospital for East End, Stratford, E.—H.P.
Reading, Royal Berks Hospital.—H.S. £200.
Royal Dental Hospital of London, Leicester-square, W.—House Anæsth. 10*s.* 6*d.* per attendance.
Royal National Orthopædic Hospital, 234, Great Portland-street, W.—H.S. £200.
St. George's Hospital, S.W.—Part-time Asst. £150.
Salford Royal Hospital.—Res. S.O. £250. H.S. £150.
Salford Union Infirmary.—Senior Res. Asst. M.O. and Second Res. Asst. M.O. £450 and £350 respectively.
Sheffield Royal Infirmary.—Hon. Radiologist. £100.
Shirlett, near Much Wenlock, King Edward VII. Memorial Sanatorium.—Res. Med. Supt. £450.
Stamford, Rutland, and General Infirmary, Stamford.—H.S. £200.
Stockport Infirmary.—Jun. Res. M.O. £200.
Stoke-on-Trent, North Staffordshire Infirmary.—H.S. £200.
Straits Settlements and Federated Malay States.—Thirty-three M.O.'s. $440 per month.
Sunderland, Royal Infirmary, Children's Hospital.—Female Jun. Res. M.O. £150. Also Visiting M.O. £300.
Sutton, Surrey, The Downs Sanatorium.—Senior Asst. M.O. £645 5*s.*
Swansea General and Eye Hospital.—Jun. H.S. £200.
Swindon, Borough of.—Asst. M.O.H. £650.

Tiverton, Devon, Hospital.—H.S. £100.
Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £300.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Radiologist. £25.
West London Hospital, Hammersmith, W.—Asst. Anæsth.
Willesden Urban District Council, Health Department.—Asst. M.O. £500.
Wolverhampton and Midland Counties Eye Infirmary.—H.S. £200.
Wolverhampton and Staffordshire General Hospital.—H.S. £200.
Worcester County and City Mental Hospital, Powick.—Jun. Asst. M.O. £300.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Bradford (North-East), Burton-upon-Trent, Llandilo, and at Waterford.

Births, Marriages, and Deaths.

BIRTHS.

DAVIDSON.—On March 17th, at Priory-row, Coventry, the wife of Dr. Duncan Davidson of a son.

FLETCHER.—On March 19th, at Devonshire-street, W., the wife of Capt. E. T. Fletcher, M.B., R.A.F.M.S., of a son.

LIVINGSTON.—At 47, Castle-street, Dumfries, on the 20th ult., to the wife of George R. Livingston, M.D.; F.R.C.S.E.—a daughter.

PITTS.—On March 23rd, at a nursing home, the wife of A. T. Pitts, D.S.O., M.R.C.S., L.D.S., of Wimpole-street, W., of a daughter.

PRITCHETT.—On March 27th, at Gloucester-road, Elvaston-place, Kensington, the wife of Captain H. Norman Pritchett, R.A.M.C., of a daughter.

REYNELL.—On March 24th, at 26, Nottingham-place, W. 1, to the wife of W. R. Reynell, M.D., M.R.C.P.—a son.

MARRIAGES.

DAVIES—MORGAN.—On March 24th, at Llanwonno Church, Glamorganshire, Trevor Berwyn Davies, M.D., M.R.C.P., F.R.C.S., to Mary Gwladys, eldest daughter of Dr. Rhys D. Morgan, J.P., and Mrs. Morgan, Gurnos House, Ynysybwl, S. Wales.

DEATHS.

ROBERTSON.—On March 28th, suddenly, at Brunswick-gardens, W., Frederick Marrant Robertson, M.D.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., to the Editor have been received from—

A.—Air Pollution Advisory Board, Manchester, Chairman of; Mr. A. J. Austin, Lond.; Actors' Orphanage, Lond.

B.—Dr. H. Brown, Lond.; Board of Education, Lond.; Dr. G. Blacker, Lond.; Mr. H. A. Barker, Lond.; Capt. W. Burridge, R.A.M.C., Swanage; Dr. J. Blomfield, Lond.; Mr. J. B. Burke, Lond.; Sir J. Byers, Belfast; Prof. W. B. Bell, Liverpool.

C.—Dr. H. P. Cholmeley, Forest Row; Dr. E. P. Cumberbatch, Lond.; Major W. B. Cosens, R.A.M.C.; Mr. W. Clarke, Geneva; Dr. E. L. Collis, Cardiff; Dr. P. J. Cammidge, Lond.; Cremation Society of England, Lond.; Dr. F. G. Collins, Lond.; Mr. V. Z. Cope, Lond.; Dr. R. Craik, Lond.

D.—Dr. S. Davies, Worthing; Dr. H. Davis, Lond.; Dr. H. Drinkwater, Wrexham; Dr. G. K. Dickinson, Jersey City; Prof. S. Delépine, Manchester.

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H.—Mr. H. W. Holman, Lond.; Prof. A. J. Hall, Sheffield; Dr. H. A. Haig, Worthing; Mr. H. E. Haynes, Brentwood.

I.—*International Medical and Surgical Survey*, New York, Editor of; Invalid Children's Aid Association, Lond., Sec. of.

J.—*Journal of the Incorporated Society of Trained Masseuses*, Lond.

K.—Mr. J. G. Kerr, St. Helens; King's College Hospital Medical School, Lond., Sec. of.

L.—Dr. G. C. Low, Lond.; Dr. T. D. Lister, Lond.; Dr. E. C. Lowe, Southport; Dr. H. L. Lyon-Smith, Lond.; Dr. F. Langmead, Lond.; Lyceum Club, Lond., Sec. of.

M.—Ministry of Health, Lond.; Metropolitan Asylums Board, Lond.; Miss I. Meller, Lond.; Dr. R. P. Moncrieff, Gosforth; Mr. A. E. Mahood, Clifton.

N.—National Safety Council, Chicago.

P.—Mr. G. H. Payne, Lond.; Mr. L. Powell, Lond.; *The Pressman*, Lond., Manager of.

R.—Mr. H. Rundle, Southsea; *The Rift*, Birmingham; Royal Maternity Charity, Lond.

S.—Dr. M. C. Stopes, Leatherhead; Mr. D. W. Stevens-Muir, Blundellsands; Société des Sciences Médicales et Biologiques, Montpellier; Dr. R. H. Steen, Dartford; Dr. E. B. Sherlock, Dartford; Prof. J. Sherren, Lond.; Capt. C. F. Strange, R.A.M.C., Chatham; Save the Children Fund, Lond.; Dr. E. W. Scripture, Lond.

T.—Dr. A. H. Thompson, Lond.

U.—University of London, Academic Registrar of; University of London Military Education Committee, Sec. of; University of Liverpool, Registrar of; University of Manchester; University of Durham Faculty of Medicine; University of St. Andrews.

W.—Dr. F. J. Waldo, Lond.; Mr. K. Walker, Lond.; Prof. R. B. Wild, Manchester; Dr. S. A. K. Wilson, Lond.; Dr. W. H. Willcox, Lond.; World Trade Club, San Francisco.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Thursday, April 8th.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 8 P.M.

Specimens:
Mr. T. G. Stevens: A Third Specimen of Douche-nozzle removed from the Female Bladder.
Mr. J. D. Barris: Cystic Embryoma of Ovary.
Dr. Eardley Holland: (1) A Placenta from a Combined Cast of Placenta-prævia and Accidental Hæmorrhage; (2) A Puerperal Uterus containing an Infected Fibromyoma.

Short Communications:
Dr. Williamson and Dr. Brockman: Two Specimens showing Extensive Fatty Change in Fibromyomata.
Lady Barrett: A Case with High Ammonia Coefficient.
Dr. Williamson: A Note on the Value of Blood-transfusion before Operation in Severe Secondary Anæmia.
Dr. A. C. Palmer: Two Cases of Rupture of the Vagina during Labour (with Specimens and Epidiascope Demonstration by Dr. Holland).
Mr. T. G. Stevens: A Case of Sacculation of Gravid Bicornuate Uterus.

Friday, April 9th.

ANÆSTHETICS (Hon. Secretaries—R. E. Apperly, Ashley S. Daly): at 8.15 P.M.
Annual General Meeting—Election of Officers and Council for 1920–1921.

Discussion (at 8.30 P.M.):
On "Anæsthesia in Operations on the Thyroid Gland," opened by Mrs. Dickinson Berry.

CLINICAL.—No meeting of this Section will be held on April 9th. The next meeting will be held on Friday, April 16th, at 5.30 P.M. (Cases at 5 P.M.) Those wishing to exhibit cases are requested to communicate with the Hon. Secretaries.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
TUESDAY, April 6th.—10 A.M., Dr. McDougal: Electrical Department. 2 P.M., Dr. Pernet: Skin Diseases.
WEDNESDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 2 P.M., Mr. Gibb: Eye Disease.
THURSDAY.—2 P.M., Dr. G. Stewart: Nerve Disease. Mr. B. Harman: Eye Department.
FRIDAY.—2 P.M., Dr. Morton: X Rays. Mr. Banks Davis: Diseases of the Throat, Nose and Ear.
SATURDAY.—2 P.M., Medical Cases.
Daily:—10 A.M., Ward Visits. 2 P.M., In-patient and Out-patient Clinics and Operations. Out-patient Department closed from April 1st to April 6th.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).
A Course of Post-Graduate Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.
FRIDAY, April 9th.—9.15 P.M., Sir StClair Thomson: Syphilis of the Throat, Larynx, &c.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE LECTURES, at the Sheffield University Pathological Museum.
WEDNESDAY, April 7th.—4 P.M., Prof. Connell: Pathology of Bone Disease.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.
THURSDAY, April 8th.—4.30 P.M., Dr. Sturrock: Epilepsy. (At Salford Royal Hospital.)

BRIGHTON DIVISION OF THE BRITISH MEDICAL ASSOCIATION, at the Children's Hospital.
THURSDAY, April 8th.—4 P.M., Clinical Demonstration.

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Notes, Short Comments, and Answers to Correspondents.

POULTRY-FARMING:
AN OCCUPATION SUITABLE FOR CONSUMPTIVES.

BY P. C. VARRIER-JONES, M.A. CAMB., M.R.C.S., L.R.C.P. LOND.,
HONORARY MEDICAL OFFICER, PAPWORTH COLONY, CAMBRIDGE;
AND
SIR G. SIMS WOODHEAD, K.B.E., V.D., M.D., LL.D.,
PROFESSOR OF PATHOLOGY, UNIVERSITY OF CAMBRIDGE; FELLOW OF TRINITY HALL, CAMBRIDGE.

Poultry-farming, to be at all successful, requires a full knowledge of the subject. Such knowledge can only be acquired by careful and well-directed practical experience. No short course of training, such as that recommended and arranged by the Ministry of Pensions, is going to be of the slightest use; indeed, it cannot but be harmful. Consumptive patients too often start poultry-keeping with the idea that after the main work of the day is done, they will be able to attend to the few chickens that are to increase their weekly earnings. In general a consumptive cannot manage a full day's work in the competitive business world. Still less can he manage his chickens as a supplementary industry. The inevitable result is that both the business and the chickens go to the wall. It is equally certain that the returns on a capital of, say, £100, will be out of all proportion to the time and energy which must be spent in carrying on a small farm. How is the patient to obtain adequate housing and the ample food and clothing so necessary for his welfare? In bad health to begin with, and subject to frequent relapses at the most critical time of the year, the patient cannot look after his chickens unaided, and it is small wonder that the small farm is soon given up. If the work is taken up on a larger scale, larger capital is required, and for the first year, even with the hardest work, there can be no income. The energy, long hours, and constant care required for the building up of such a farm must, in most cases, be out of the question so far as the average consumptive is concerned.

As a rule, the ex-soldier has not the necessary capital to finance the business, much less the necessary money to pay wages for the help he undoubtedly requires. The one-man business, so far as the consumptive is concerned, is undesirable. Help must be available the instant a relapse, however slight, occurs.

An Industry, not a Charitable Concern.

There remains, then, for consideration the employment of a consumptive as an employee on one of the many egg farms which are scattered all over the country. These, it must be remembered, are run, as all businesses are run, for profit. Any given farm can "carry" only a certain number of employees, and there is no room for a man whose labour is not a source of profit to the employer or company, as the case may be. The hours of work are long, and these hours must be worked seven days a week. It is a matter of considerable difficulty to induce the management of a poultry-farm to allow one of the staff to work fewer hours per week than the others, and without the concession of this privilege the career of the consumptive as an employee on such a farm quickly comes to an end.

In whatever trades inquiries are made the same problem presents itself. Whether in an out-door employment or an indoor one in a factory it is the pace that kills the consumptive, or, in other words, the competition with the healthy worker. A permanently damaged man cannot keep pace with the healthy competitor, and this holds good whether the work be indoors or out. Consumptives only keep well in an environment in which great attention is paid to certain factors—working hours regulated to their strength, absence of competition with healthy workers, an abundant dietary, and ample opportunity to recuperate when a slight relapse occurs, and lastly, but by no means least, ever-ready help at hand should adverse circumstances be encountered.

The most important question when industries suitable for consumptives are under consideration is whether these essentials can be provided and at the same time the industry be made a business in the sense of not being purely a charitable concern. It can be done, but it can only be done by the study of the particular industry, and with the help of a man who thoroughly understands not only the industry in question but also the physical and temperamental peculiarities of the consumptive patient.

The Poultry-Farm at the Papworth Colony.

A brief account of the building up of the 40-acre poultry-farm at the Papworth Colony may assist others to build an even better one, and thus help in solving the problem of the employment of the consumptive. In the first place, the labour of the healthy individual must not be called upon. It is the fashion to start a colony with healthy labour, to prepare the way and create elaborate buildings for the reception of the industries, and, when these are complete, to draft the patients in for training. Such a procedure cuts at the very root of successful business building. All must realise that unless interest in the industry is aroused an enormous incentive to work is lost. We wish the patient to realise that he is building up a business, not running an institution. We find that to the consumptive no influence is more depressing or deadening than the absence of any chance of promotion and the attainment of a better position. The joy of life must be conserved at all costs. The difference between monotony of training in a fully equipped establishment and pride of helping in the development of a business is just the difference between being a unit in a training scheme pure and simple and an apprentice in a live business concern.

We have endeavoured, therefore, and have so far succeeded, in employing only consumptive labour to build up and carry on our poultry-farm, exactly as if it were a private commercial enterprise. The men employed in this task look forward to permanent employment on the farm, or when this is impossible, to being started on a subsidiary farm under the wing of the central organisation. Beyond this, however, we have learned that it is possible to pay these men a definite wage according to their working capacity, and to pay this wage out of the profits of the farm. This is rather a remarkable outcome of our experience, for rarely is a pupil on a poultry-farm paid anything for his labour. The explanation is that in a commercial egg-farm a profit had to be made and paid out in dividends to the owners or shareholders. At the colony this profit is divided amongst the workers on the farm, and only by a specially arranged method of working can this be done. Obviously, therefore, while the commercial plant is placed at a disadvantage when it attempts to employ consumptive labour, when the Papworth Poultry-Farm can be run by consumptives entirely for consumptives.

How to Meet the Consumptive's Special Difficulties.

One of the great difficulties in the way of a consumptive running a small business is the risk of a relapse at a critical time in the career of that business. For instance, all through the hatching season—especially if artificial methods are employed—a short spell of illness on the part of the owner may seriously prejudice, if it does not permanently injure, the future development of the concern. For a consumptive to be shielded and carried over these periods of indisposition in such a way that his business may not suffer, he must have help quickly and cheaply. When a consumptive is set up in business on his own account this can best be arranged by some method of affiliation with a business similar to his own from which he may obtain almost instant assistance. A large poultry-farm like that at Papworth is in a position to provide this help, and so confer an inestimable boon on the man in question. For those who are permanently employed on the farm the work is so arranged that relays of workers can be set to do various jobs, to which their strength is equal. In other words, a system of repetition work is introduced which economises labour in the long run, and more hands can be employed per acre than under any other system. The profits are available for this extra labour; it is possible to pay good rates of remuneration, and general satisfaction is secured. It is only by carrying on the enterprise on a large scale that this dilution of labour is possible, and it is certainly only by this method that the additional labour is profitable and available for outside help. Indeed, in any scheme for the employment of the consumptive it must be borne in mind that the industry selected must be one which can take a satisfactory number per acre, and which allows of transference of labour to the area in which it may temporarily be required.

For many reasons, then, these poultry-farms must be more or less centralised. Poultry-farming is one of the trades that require a larger acreage than many others—for example, cabinet-making. An acre of workshop space can, of course, accommodate a far greater number of hands than can a poultry-farm. On the other hand, a poultry-farm can carry many more hands than a general farm; moreover, it is possible to arrange the work on the repetition system more easily and to arrange the hours accordingly. It has been demonstrated that a poultry-farm built up, equipped, and run by consumptives for consumptives, can be made a paying concern; that it can be made capable of employing a large number of hands; and that this is done not by turning the profits into dividends but by paying them out in wages for the extra hands which could be dispensed with if

normal labour were employed. This, it seems to us, is the proper method of attacking the great problem of the employment of consumptives. By attacking it on these lines it should no longer be necessary to court failure by applying to charitably disposed individuals to take into employment on their farms consumptives unable to give a full day's work or work every day in the week. A practical method of employing the consumptive has been evolved and a sound business has been provided for the purpose of employing consumptives and, most important of all, of working them at their own pace.

The question of industries for consumptives is one of pressing importance. The waste of human material caused directly by the tubercle bacillus calls for immediate attention. The figures setting forth the loss to the nation are well known. By a careful study of each suitable industry on the lines set out above it will be possible, we believe, to save much of this waste, to economise labour, promote the welfare of the consumptive, and add to the protection of the country. What about the waste of human material? Has it been so salvaged and used to the best advantage that waste is eliminated or reduced to a minimum? In the past I think not. Of all our resources labour has received the least consideration, granting exceptions in isolated cases. After the cream of a man's efforts had been extracted he was thrown on the scrap-heap, and in many cases his best assets were lost, not only to himself, but to the State. We are at length waking up to the fact that this material can be usefully employed, but the conditions of employment under which it can be made profitable to the State are only now being worked out and the lines of future action indicated.

DEFECTS OF HEARING AND VISION IN THE SCHOOL CHILD.

IN a lecture on medical inspection in schools given under the auspices of the London County Council at the London Day Training College, Southampton-row, London, W.C., on March 24th, Dr. F. S. Langmead emphasised the importance of the proper treatment of middle-ear disease in school children. Statistics showed that at the school-leaving age 8·9 per cent. of the children had less than three-quarters of the normal hearing and 6·4 per cent. less than half the normal. The chief causes of the disease were infections from the throat, tonsils, and adenoids, and, more remotely, the infectious diseases. A few, though not many, cases were due to tuberculosis. The condition was an extremely important and dangerous one, often followed by mastoid disease, meningitis, thrombosis, and septicæmia.

Dealing with vision, the lecturer said the figures for London showed that upwards of 20 per cent. of boys and 22 per cent. of girls had defective vision. In Staffordshire the statistics gave 26·7 per cent. boys and 33·1 per cent. girls. Among older children just about to leave school Dr. C. J. Thomas had found that 10 per cent. had very serious defects of the sight, while 13 per cent. had less serious defects. Generally speaking, the defects in school children occurred before the child entered school life, but eye defects were often school produced. If eye defects existed school life might make them worse, and even lead to total blindness or such further incapacity that education was wasted and the wage-earning capacity considerably diminished or lost. Errors of refraction were the most common, and of 755 children examined for eye defects 650, or 86 per cent., suffered from hypermetropia. This trouble not only caused the child great inconvenience, but might give rise also to headache, vomiting, nausea, want of appetite, giddiness, and eventually end in a condition of neurasthenia. Even fits had been ascribed to eye-strain. Myopia was an even more serious condition, and of the 755 children examined 105, or 13·9 per cent., had myopia. While the only symptoms complained of might be indistinct vision, secondary destructive changes might take place, detachment of the retina being one of the most severe. There seemed to be some individual predisposition to myopia, which was considerably increased if the eyes were used for near work. Probably, for this reason, it was more common in cities. Myopia was commoner in secondary schools, where finer work was done, than in primary, and among the professional classes. Some years ago Priestley Smith found that while there were 5 or 6 per cent. of myopes in elementary schools the percentage among teachers in the training colleges was no less than 20. The defect was commoner in girls, but that fact had not been explained. It was interesting to note that south of the river Thames the children came out best with respect to nutrition, teeth, and vision; north of the river nutrition and teeth were worse, but the vision was about the same. In the East of London the nutrition and teeth were the best of all, but the vision the worst, the explanation being probably the large alien population with a predisposition to myopia. Astigmatism was a third variety of refractive error giving rise to symptoms of eyestrain which might be even more severe than in hypermetropia. In the prevention of these defects much might be done by attention to proper lighting in schools and the provision of suitable desks.

In conclusion, Dr. Langmead called attention to an educational circular which permitted teachers to give to certain children "easy" instruction and "oral" instruction only. While these instructions did not seem to be fully known, he pointed out that unless they were intelligently acted upon there was danger of making a child blind by forcing him to attend school.

RESCISSION OF RATS ORDERS.

IN view of the Rats and Mice (Destruction) Act, 1919, which came into force on Jan. 1st, the Food Controller has revoked the Rats Order, 1918 (amended in 1919). The Orders of the late Local Government Board—viz., the Local Authorities (Food Control) Orders (No. 5), 1918, and (No. 1), 1919, empowering local authorities to enforce and execute the Rats Orders, have consequently lapsed. The Ministry has thought it desirable, however, in order to avoid any possibility of confusion in the matter, that the Orders of the Local Government Board should be formally revoked, and copies of the rescinding Order have now been enclosed for the information of the local authority. A joint memorandum on the arrangements to be made by local authorities for the destruction of rats and sparrows was issued in April, 1917, jointly by the Local Government Board and the Board of Agriculture. The Rats and Mice (Destruction) Act, 1919, has also become obsolete and is formally withdrawn.

A USEFUL MEDICAL INDUCTION COIL.

THE "physio" faradic wave apparatus is a medical induction coil which embodies many features of practical utility. The interrupter is of the type originally introduced by Tripier, and it can be regulated to vibrate any number of times between 60 and 3000 per minute. The secondary coil is composed of four separate windings, and, by means of a switch, the current induced in either of these can be utilised. Currents at different voltage can thus be obtained. These can be finely varied by sliding the secondary coil over the primary. The secondary coil is mounted on two parallel metal runners, thus allowing its easy movement to and fro, so that an even rhythmic variation of the strength of the induced current can be readily obtained. The coil is mounted in a neat case to which is fitted a leather strap by means of which it can be carried about and two dry cells for operating are packed in the base of the case. The well-made apparatus is manufactured by the Medical Supply Association, Gray's Inn-road, W.C.

SCHOOL ATTENDANCE: AN UNUSUAL CASE.

AT Tavistock (Devon) recently a local builder was summoned for not sending his male child to school. It was stated that the reason of the non-attendance was that the father did not wish to allow the school medical officer to take a specimen of the child's hair for microscopical examination for ringworm spores. The medical officer had found these on a previous examination. For the defence it was contended that two medical practitioners had stated the boy was free from ringworm, and had written to that effect. Eventually the father stated that he would allow the school medical officer to examine the hair, and the case was then withdrawn.

POST-MORTEM EXAMINATIONS AND INQUESTS.

Dr. F. J. Waldo states in his latest report that in 85 per cent. of the inquests before him in 1918 he ordered post-mortem examinations to be held. This is a high proportion, but it is not in any way too high, and, indeed, there must be very few cases, an inquest being necessary, where a post-mortem examination can safely be dispensed with. A good example of the usefulness of a post-mortem examination was afforded at a recent inquest held by Mr. A. D. Cowburn, deputy coroner for North-East London. The deceased, a man, 65 years of age, was found lying dead on the pavement outside his house, having apparently thrown himself from an upstairs window. On the first appearances it was a case of suicide. Post-mortem examination, however, showed such extensive disease of the heart that the medical evidence ascribed death to this and not to the fall. The medical witness suggested, on a matter which, in the absence of any other evidence, was conjecture only, that the deceased had gone to the window and opened it on finding a sudden difficulty in breathing. That he should fall forward in dying, and overbalancing should fall out through the window, would be the natural consequence of this. The jury adopted the view put forward by the medical man, and returned a verdict of accidental death upon the information supplied by post-mortem examination.

THE ex-Service men of Messrs. W. D. and H. O. Wills, of Bristol, have collected £500 for the Bristol Children's Hospital.